Notice:

This catalog is intended to supply accurate information to the reader. From time to time, certain information may be changed.

The College may revise any matter described in this catalog at any time without publishing a revised edition of this catalog. Courses, programs, curricula and program requirements may be changed or discontinued at any time. Information that appears to apply to a particular student should be verified with the Office of Student Affairs at your local campus. Local campus information is found on page 4. The publication and its provisions are not in any way a contract between the student and Ivy Tech Community College.

Ivy Tech is an accredited, equal opportunity, affirmative action state college.

A copy of the most recent annual financial statement can be obtained upon request from the Office of the Treasurer.

© 2010 Ivy Tech Community College.
Message from the President

Welcome to Ivy Tech Community College, the nation's largest single accredited statewide community college system and Indiana’s largest college/university. We offer degrees at 29 locations and we have more than 150,000 students studying over 150 different programs throughout Indiana. You have made a wise choice in choosing to continue your education at Ivy Tech Community College. You will find faculty and staff dedicated to assisting you as you progress through your academic studies and complete your certificate or degree program. And whether you choose to enter the workforce after earning your degree/certificate or transfer your credits to another institution to pursue a bachelor's degree, Ivy Tech Community College is committed to giving you the education you need to be competitive and successful.

Not only will your education change your life, but it will also benefit those around you. You will directly contribute to your communities by providing the skills and knowledge needed in today’s workplace. Community colleges are growing across the country because they provide education where it is needed the most – in communities that they serve. Ivy Tech Community College stands by its commitment to change the lives of its students and in turn make Indiana great. We are proud to have you as an Ivy Tech Community College student.

Sincerely,

Tom Snyder, President
Ivy Tech Community College
president@ivytech.edu
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**COLLEGE MISSION**
Ivy Tech Community College prepares Indiana residents to learn, live, and work in a diverse and globally competitive environment by delivering professional, technical, transfer, and lifelong education. Through its affordable, open-access education and training programs, the College enhances the development of Indiana’s citizens and communities and strengthens its economy.

**COLLEGE VISION**
Indiana’s residents, communities, and economy will be transformed by Ivy Tech Community College’s leadership in higher education.

**CORE VALUES**
We value, respect, and promote:
- A Student-centered Environment
- A Faculty/staff-focused Environment
- Diversity
- Integrity
- Community Engagement
- Innovation
- Excellence

**ACHIEVING THE DREAM**
The College is proud to be one of 122 community colleges participating in Achieving the Dream (AtD), a national initiative that uses data to develop practices that help more students succeed. The enrollment and completion trends of Ivy Tech students have been analyzed and the college is now engaged in developing solutions as suggested by former and current students from Ivy Tech and other AtD colleges. Many of the activities and processes being designed at the time of printing will be implemented in fall of 2010, with the expectation that more Ivy Tech students will be successful and achieve their educational goals.

**NON-DISCRIMINATION AND EQUAL OPPORTUNITY POLICY**
Ivy Tech Community College of Indiana provides open admission, degree credit programs, courses and community service offerings, and student support services for all persons regardless of race, color, creed, national origin, religion, gender, sexual orientation, physical or mental disability, age or veteran status. The College also provides opportunities to students on the same non-discriminatory opportunity basis. Persons who believe they may have been discriminated against should contact the campus affirmative action officer, Human Resources Administrator, or Dean of Student Affairs. Ivy Tech Community College of Indiana is an accredited, equal opportunity/affirmative action institution.

**COLLEGE CALENDAR**
Ivy Tech is on a semester schedule. Fall and spring semesters are 16 weeks long. Summer terms are of varying lengths. Certain dates on the college calendar may vary by campus. Specific start and end dates for the fall, spring and summer semesters are listed in the calendar in this publication.

**REGIONAL ACCREDITATION STATEMENT**

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*Some regions/campuses may have additional vacation days; check with your campus for your specific calendar.*

The Higher Learning Commission
30 N. LaSalle Street, Suite 2400
(800) 621-7400 or (312) 263-0456
Fax: (312) 263-7462
How to Use this Catalog

THIS CATALOG IS EASY TO USE
Just take a minute to flip through it. You'll see right away that it isn't too hard to find what you're looking for. When in doubt, use the table of contents in the front or the index in the back.

IT HAS SIX SECTIONS
General Information and College Services — This section has basic information about the College and its campuses. It includes College history, campus addresses, and other important information such as financial aid, student rights, grading systems, and so on. Get to know this section well.

Degree Programs and Requirements — Use this section to find out which classes to take to earn the degree or certificate you want. It's organized by "program" (such as business administration or industrial technology), and then by "concentration" (such as youth services). You also use this section to find out what degrees are offered in a certain field and how many course credits you need to complete them. It also tells how many credits you'll earn for each course.

Course Descriptions — After you look up the classes you need in Section 2, you'll probably want to know what they're all about. Go to this easy-to-use section for that. Simply find the course number (see sample page at right) in the Program Descriptions section (Section 2) and then look it up in the Course Descriptions section (Section 3). Everything in Section 3 is in alphabetical order.

Program Availability — Ivy Tech offers many educational programs and degrees, but not all programs and degrees are offered at all 23 campuses. This section is designed to help you quickly find which programs are available at the Ivy Tech campus that interests you.

Faculty and Staff — This section is a list of full-time faculty and their educational backgrounds.

Accreditations and Memberships — This section shows which organizations and agencies accredit Ivy Tech Community College, its campuses, and programs.

WATCH FOR SYMBOLS AND TERMS.
A degree or certificate program requires different types of courses. There are four terms that describe course types: "General Education," "Professional/Technical," "Concentration," and "Regionally Determined." Most degrees or certificates require some courses of each type. Other terms you'll see are:

Elective — The term "elective" means you can choose the class you want from those offered on your campus. These are marked with an "**".

Capstone Course — This type of course includes a component that assesses certain skills that will be expected of you as a graduate in the workforce. The assessment typically involves a written assignment. These are marked with a "^".

Regionally Determined — This means your campus decides which classes you must take to complete the degree. In cases where you see courses marked with the symbol "***", it means that one of two courses is required and your campus decides which. In other cases, your campus determines which courses are required to fulfill the degree, based primarily on needs of local business and industry.

Your academic advisor can tell you which classes are required.

How to Use the Programs of Study Section
All of the pages in the Programs of Study section follow the same format. The page at the right (page 3) contains a typical page from this section. The table below gives the description of each of the keyed items on the sample page.

A This tells the name of the educational program.
B This describes the educational program.
C This tells you the types of careers you can have with a degree within this program.
D This tells the degrees available within the educational program.
E This tells you the concentrations that are available within this program.
F This is the type of degree.
G This tells how many credits you need to earn a degree.
H This describes the course types and how many credits hours in each you need to earn the degree.
I This is the course type symbol.
J This is the course number.
K This is the course name.
L This tells how many credits a course is worth.

COURSE TYPE KEY
* Elective
^ Capstone Course
** Regionally Determined
**Program Description**
If you are looking for an opportunity for public service in a challenging job that involves personal responsibility, you may find success in the criminal justice field. Knowledge of sociology, psychology, government and law is helpful in preparing for this career.

**Sample Careers**
Corrections officer, law enforcement officer

**Degrees Available**
Associate of Science, Associate of Applied Science

**Concentrations Offered**
Corrections, Law Enforcement, Youth Services

Availability of concentrations and degrees varies by campus. Contact your local campus for more information. See page 6 for contact information.

**Associate of Science**
Articulated transfer through an Associate of Science in Criminal Justice is available with Indiana State University, Indiana University and IU-South Bend. To view these Associate of Science degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

**Associate of Applied Science**
To earn this degree, you must have 61-62 credits in the following areas:

- **General Education Core**
  - 19 credits

- **Professional/Technical Core**
  - 27 credits

- **Concentration Courses**
  - 12 credits

- **Regionally Determined Credits**
  - 3-4 credits

**General Education** (19 Credits)

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<td>COMM 101</td>
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<td>IVY 1XX</td>
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<td>MATH 1XX</td>
<td>Mathematics Elective</td>
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<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
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<td>or SOCI 111</td>
<td>Introduction to Sociology</td>
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<td>* XXXX XXX</td>
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**Professional/Technical** (27 Credits)

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<tr>
<td>CRIM 103</td>
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<tr>
<td>CRIM 105</td>
<td>Introduction to Criminology</td>
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**Choose One of the Following Concentrations**

**Corrections Concentration** (15-16 credits)
Vigorous law enforcement and stringent sentencing rules have increased the number of people being held for trial or imprisoned for their crimes in the last decade. Corrections officers monitor people being detained for trial and those who have been imprisoned.

- CRIM 110 Introduction to Law Enforcement 3
- CRIM 120 Introduction to Courts 3
- CRIM 130 Introduction to Corrections 3
- CRIM 201 Ethics in Criminal Justice 3
- CRIM 240 Criminal Law and Procedure 3
- **CRIM 260 Criminal Justice Research** 3

**Law Enforcement Concentration** (15-16 credits)
Law enforcement officials provide assistance, respond to emergency calls, investigate crime scenes, and testify in court. This concentration places emphasis on developing the skills needed to be a police officer, including law, community relations, procedural law and criminal investigations.

- CRIM 113 Criminal Investigations 3
- CRIM 210 Police and Community Relations 3
- CRIM 220 Criminal Evidence 3
- CRIM 300 Program Elective 3
- Regionally Determined Credits:
  - CRIM 280 Internship 4
  - CRIM XXX Criminal Justice elective 3
Ivy Tech offers degrees in 29 locations. Courses are offered in communities across the state.

ANDERSON (East Central)
104 West 53rd Street
Anderson, IN 46013-1502
Phone: (765) 643-7133
1-800-644-4882

BATESVILLE (Southeast)
920 County Line Road
Batesville, IN 47006
Phone: (812) 934-3954
1-888-360-0027

BLOOMINGTON (Bloomington)
200 Daniels Way
Bloomington, IN 47404-9272
Phone: (812) 332-1559
1-866-447-0700

COLUMBUS (Columbus)
4475 Central Avenue
Columbus, IN 47203-1868
Phone: (812) 377-9925
1-800-922-4838

CONNERSVILLE (Connersville)
717 W. 21st St.
Connersville, IN 47331
Phone: (765) 825-9394
1-888-489-5463

EAST CHICAGO (Northwest)
410 E. Columbus Drive
East Chicago, IN 46312-2714
Phone: (219) 392-3600
1-800-392-4882

ELKHART (North Central)
22531 County Road 18
Goshen, IN 46528
Phone: (574) 293-4657

EVANSVILLE (Southwest)
3501 First Avenue
Evansville, IN 47710-3319
Phone: (812) 426-2865

FORT WAYNE (Northeast)
3800 North Anthony Boulevard
Fort Wayne, IN 46805-1489
Phone: (260) 482-9171
1-800-859-4882

GARY (Northwest)
1440 East 35th Avenue
Gary, IN 46409-1499
Phone: (219) 981-1111
1-800-843-4882

GREENCASTLE (Wabash Valley)
915 S. Zinc Mill Road
Greencastle, IN 46135
Phone: (765) 653-7410
1-800-750-3007

INDIANAPOLIS (Central Indiana)
50 W. Fall Creek Parkway N. Dr.
Indianapolis, IN 46208-5752
Phone: (317) 921-4800
1-800-715-1058

KOKOMO (Kokomo)
1815 East Morgan Street
Kokomo, IN 46901-1373
Phone: (765) 459-0561
1-800-459-0561

LAFAYETTE (Lafayette)
3013 South Crayzak Lane
Lafayette, IN 47905-6299
Phone: (765) 269-5000
1-800-669-4882

LAWRENCEBURG (Southeast)
50 Walnut Street
Lawrenceburg, IN 47025-2971
Phone: (812) 537-4010
1-800-459-0561

LOGANSPORT (Logan)
1 Ivy Tech Way
Loganport, IN 46947
Phone: (574) 753-5101

MADISON (Southeast)
590 Ivy Tech Drive
Madison, IN 47250-1881
Phone: (812) 651-3100
1-800-403-2190

MARION (East Central)
261 S. Commerce Drive
Marion, IN 46953-9370
Phone: (765) 651-3100
1-800-554-1159

MICHIGAN CITY (Northwest)
3714 Franklin Street
Michigan City, IN 46360-7311
Phone: (219) 879-9137
1-800-843-4882

MUNCIE (East Central)
4301 South Cowan Road
Muncie, IN 47302-9448
Phone: (765) 289-2291
1-800-589-8324

NEW CASTLE (East Central)
300 Trojan Lane
New Castle, IN 47362
Phone: (765) 521-9012

RICHMOND (Richmond)
2357 Chester Boulevard
Richmond, IN 47374-1298
Phone: (765) 966-2556
1-800-659-4562

SELLERSBURG (Southern Indiana)
8204 Highway 311
 Sellersburg, IN 47172-1897
Phone: (812) 246-3301
1-800-321-9021

SOUTH BEND (North Central)
220 Dean Johnson Blvd.
South Bend, IN 46601-3415
Phone: (574) 289-7001
1-888-489-5463

TERRA HAUTE (Wabash Valley)
8000 S. Education Drive
Terra Haute, IN 47802-4898
Phone: (812) 299-1121
1-800-377-4882

VALPARAISO (Northwest)
8000 S. Education Drive
Valparaiso, IN 46383-2520
Phone: (219) 464-1854
1-800-252-6662

WARSAW (North Central)
3755 Lake City Highway
Warsaw, IN 46580-3901
Phone: (574) 267-5428

WABASH (Kokomo)
227 N. Thome Street
Wabash, IN 46992
Phone: (260) 563-8828

NEWTON (Southwest)
211 E. Main Street
Newton, IN 46262
Phone: (574) 753-5101

SWANSON (Southeast)
120 W. Main Street
Swanson, IN 47988
Phone: (574) 267-5428

TOLL FREE: 1-800-589-8324

Web Site: www.ivytech.edu
### Ivy Tech Program Inventory

**SCHOOL OF APPLIED SCIENCE AND ENGINEERING TECHNOLOGY**

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<td>Biotechnology</td>
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<td>Regulatory Affairs</td>
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<tr>
<td>Technical</td>
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<tr>
<td>Chemical Technology</td>
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<td>Concentrations:</td>
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<tr>
<td>Chemical Lab Tech</td>
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<td>Forensics Lab Tech</td>
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<td>Kinesiology</td>
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<td>Pre-Engineering</td>
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<td>Home Technology Integration/</td>
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<td>Energy Auditing</td>
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**SCHOOL OF BUSINESS**

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<td>Human Resources Management</td>
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<td>Computer Information Systems</td>
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<td>Certificate</td>
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<td>Concentrations:</td>
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<td>Database Management</td>
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<td>Programmer/Analyst</td>
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<td>Database</td>
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**SCHOOL OF EDUCATION**

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**SCHOOL OF FINE ARTS AND DESIGN**

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<td>Interior Design</td>
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<td>Interior Design</td>
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<td>Concentrations:</td>
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<td>Film and Video</td>
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<td>Graphic Design</td>
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<td>Photography</td>
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<td>Web Design</td>
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<td>Network Security</td>
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<td>Data Security</td>
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<td>Software Applications</td>
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<td>Network</td>
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<td>Network Administration</td>
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<td>PC Support and Administration</td>
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### Certificate Programs

**SCHOOL OF BUSINESS**

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**SCHOOL OF EDUCATION**

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**SCHOOL OF FINE ARTS AND DESIGN**

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<td>Decorative Arts and Design</td>
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<td>Film and Video</td>
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<td>Health Care Support</td>
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<td>Health Information Technology</td>
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<td>Imaging Sciences</td>
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<td>Nursing</td>
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<td>Physical Therapist Assistant</td>
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<td>Practical Nursing</td>
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<td>Radiation Therapy</td>
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<td>Surgical Technology</td>
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**SCHOOL OF LIBERAL ARTS AND SCIENCES**

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<td>English and Communication</td>
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<td>Humanities</td>
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<td>Life and Physical Sciences</td>
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<td>Mathematics</td>
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<td>Social and Behavioral Sciences</td>
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**SCHOOL OF PUBLIC AND SOCIAL SERV**

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<td>Homeland Security and Emergency</td>
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<td>Management</td>
<td>TC, AAS, AS</td>
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<tr>
<td></td>
<td><strong>Concentrations:</strong></td>
</tr>
<tr>
<td></td>
<td>Baking and Pastry Arts</td>
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<tr>
<td></td>
<td>Culinary Arts</td>
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<tr>
<td></td>
<td>Event Management</td>
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<tr>
<td></td>
<td>Hotel Management</td>
</tr>
<tr>
<td></td>
<td>Restaurant Management</td>
</tr>
<tr>
<td>Human Services</td>
<td>TC, AAS*, AS*</td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations:</strong></td>
</tr>
<tr>
<td></td>
<td>Correctional Rehabilitation Services</td>
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<tr>
<td></td>
<td>Direct Support Professional</td>
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<tr>
<td></td>
<td>Generalist</td>
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<tr>
<td></td>
<td>Gerontology</td>
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<tr>
<td></td>
<td>Indiana Youth Development</td>
</tr>
<tr>
<td></td>
<td>Professional</td>
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<td></td>
<td>Mental Health</td>
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<td></td>
<td>Substance Abuse</td>
</tr>
<tr>
<td>Library Technical Assistant</td>
<td>AS*</td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations:</strong></td>
</tr>
<tr>
<td></td>
<td>Children's Services</td>
</tr>
<tr>
<td></td>
<td>Library Technology</td>
</tr>
<tr>
<td>Mortuary Science</td>
<td>AAS</td>
</tr>
<tr>
<td>Paralegal Studies</td>
<td>AAS*, AS*</td>
</tr>
<tr>
<td></td>
<td><strong>Concentrations:</strong></td>
</tr>
<tr>
<td></td>
<td>Correctional Rehabilitation Services</td>
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<td></td>
<td>Direct Support Professional</td>
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<td>Generalist</td>
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<td>Gerontology</td>
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<td>Indiana Youth Development</td>
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<td>Professional</td>
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<td>Mental Health</td>
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<td></td>
<td>Substance Abuse</td>
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<tr>
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</tr>
<tr>
<td><strong>SCHOOL OF TECHNOLOGY</strong></td>
<td><strong>TC, AAS, AS</strong></td>
</tr>
<tr>
<td><strong>Concentrations:</strong></td>
<td><strong>Certificate</strong></td>
</tr>
<tr>
<td><strong>Aviation Maintenance Technology</strong></td>
<td><strong>AAS</strong></td>
</tr>
<tr>
<td><strong>Buildiing Construction Management</strong></td>
<td><strong>AAS, AS</strong></td>
</tr>
<tr>
<td><strong>Concentrations:</strong></td>
<td><strong>Certificate</strong></td>
</tr>
<tr>
<td><strong>Building Trades Apprenticeship</strong></td>
<td><strong>TC, AAS, AS</strong></td>
</tr>
<tr>
<td><strong>Concentrations:</strong></td>
<td><strong>Certificate</strong></td>
</tr>
<tr>
<td><strong>Construction Technology</strong></td>
<td><strong>TC, AAS</strong></td>
</tr>
<tr>
<td><strong>Design Technology</strong></td>
<td><strong>Certificate</strong></td>
</tr>
<tr>
<td><strong>Electronics and Computer Technology</strong></td>
<td><strong>AAS, AS</strong></td>
</tr>
<tr>
<td><strong>Industriial Apprenticeship</strong></td>
<td><strong>TC, AAS</strong></td>
</tr>
<tr>
<td>Concentrations:</td>
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<td></td>
</tr>
<tr>
<td>Electric Line Technology</td>
<td></td>
</tr>
<tr>
<td>Heating, Ventilation &amp; Air Conditioning</td>
<td></td>
</tr>
<tr>
<td>Machining</td>
<td></td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
</tr>
<tr>
<td>Natural Gas Technology</td>
<td></td>
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<tr>
<td>Power Plant Technology</td>
<td></td>
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<tr>
<td>Process Operations</td>
<td></td>
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<tr>
<td>Welding</td>
<td></td>
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<tr>
<td>Fluid Power</td>
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<tr>
<td>Heating and Air Conditioning</td>
<td></td>
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<tr>
<td>Industrial Electrician</td>
<td></td>
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<tr>
<td>Machine Tool</td>
<td></td>
</tr>
<tr>
<td>Welding</td>
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<table>
<thead>
<tr>
<th>Certificate</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Machine Tool Technology</th>
<th>AAS</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Manufacturing, Production, and Operations</th>
<th>TC*, AAS*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Available online
PROGRAM CURRICULUM

Key for Curriculum Listings

* Student Elective
** Regionally Determined
^ Capstone
Accounting

Program Description
The Accounting program develops an understanding of accounting principles, business law, communications, business equipment and related areas of study in the field. Instruction is offered in computerized accounting systems. Technical skills in financial accounting, cost accounting and tax preparation are emphasized.

Sample Careers
Bookkeeper, payroll clerk, junior or staff accountant

Degrees Available
Associate of Science, Associate of Applied Science, Technical Certificate

Certificates Offered
Bookkeeper, Fundamental Payroll

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Accounting is available with IU Kokomo, IUPUI and IUPUC. To view these transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu. Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 61 credits in the following areas:
- General Education Core 19
- Professional/Technical Core 30
- Regionally Determined Credits 12

General Education (19 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- * ECON XXX Economics Elective 3
- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 1
- ** MATH 1XX Mathematics Elective 3
- * XXXX XXXX Life/Physical Sciences Elective 3
- * XXXX XXXX Humanities/Social Sciences Elective 3

Professional/Technical (30 Credits)
- ACCT 101 Financial Accounting 3
- ACCT 102 Managerial Accounting 3
- ACCT 105 Income Tax 3
- ACCT 201 Intermediate Accounting I 3
- ACCT 203 Cost Accounting I 3
- ^ ACCT 225 Integrated Accounting Systems 3
- BUSN 101 Introduction to Business 3
- BUSN 102 Business Law 3
- CINS 101 Introduction to Microcomputers 3
- OFAD 218 Spreadsheets 3

Other Required Courses (12 Credits)
- Regionally Determined Credits 12

Associate of Applied Science via Distance Education
To earn this degree, you must have 61 credits in the following areas:
- General Education 19
- Professional/Technical Core 42

General Education (19 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- ECON 201 Principles of Macroeconomics 3
- or ECON 202 Principles of Microeconomics 3
- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 1
- MATH 1XX Mathematics Elective 3
- XXXX XXXX Life/Physical Sciences Elective 3
- XXXX XXXX Humanities/Social and Behavioral Sciences Elective 3

Professional/Technical (42 Credits)
- ACCT 101 Financial Accounting 3
- ACCT 102 Managerial Accounting 3
- ACCT 105 Income Tax 3
- ACCT 201 Intermediate Accounting I 3
- ACCT 203 Cost Accounting I 3
- ^ ACCT 225 Integrated Accounting Systems 3
- BUSN 101 Introduction to Business 3
- BUSN 102 Business Law 3
- CINS 101 Introduction to Microcomputers 3
- OFAD 218 Spreadsheets 3
- Regionally Determined Credits 12
Accounting continued

Technical Certificate
To earn this degree, you must have 31 credits in the following areas:

General Education Core 7
Professional/Technical Core 9
Regionally Determined Credits 15

General Education (7 Credits)
** COMM 101 Fundamentals of Public Speaking 3
** ENGL 111 English Composition 3
IVYT 1XX Life Skills Elective 1
* XXXX XXX Humanities/Social Sciences Elective 3

Professional/Technical (9 credits)
ACCT 101 Financial Accounting 3
ACCT 102 Managerial Accounting 3
CINS 101 Introduction to Microcomputers 3

Other Required Courses (15 credits)
Regionally Determined Credits 15

Certificate: Bookkeeper

Professional/Technical (18 credits)
ACCT 101 Financial Accounting 3
ACCT 102 Managerial Accounting 3
ACCT 105 Income Tax 3
ACCT 106 Payroll Accounting 3
CINS 101 Introduction to Microcomputers 3
OFAD 218 Spreadsheets

Certificate: Fundamental Payroll

Professional/Technical (18 credits)
ACCT 101 Financial Accounting 3
ACCT 106 Payroll Accounting 3
ACCT 122 Accounting Systems Application 3
BUSN 102 Business Law 3
CINS 101 Introduction to Microcomputers 3
OFAD 218 Spreadsheets 3
Advanced Manufacturing

Program Description
The Advanced Manufacturing Technology program is designed to prepare students for the modern manufacturing environment. This program will prepare you for employment with companies that have implemented team oriented design, production, quality, and maintenance systems within the manufacturing environment.

American manufacturers are becoming increasingly dependent upon the use of high-tech equipment that involves multiple, integrated systems. It is critical that these companies be able to recruit and employ individuals who know how to operate, troubleshoot, and maintain this high-tech equipment.

Sample Careers
Jobs in the manufacturing environment

Degrees Available
Associate of Applied Science

Certificates Offered
Manufacturing Operations, Mechatronics Certification Level I

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Certificate: Manufacturing Operations

<table>
<thead>
<tr>
<th>Professional/Technical</th>
<th>(18 Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMF 101</td>
<td>Key Principles of Advanced Manufacturing</td>
</tr>
<tr>
<td>ADMF 102</td>
<td>Technology in Advanced Manufacturing</td>
</tr>
<tr>
<td>ADMF 109</td>
<td>Green Manufacturing Operations</td>
</tr>
<tr>
<td>ADMF 118</td>
<td>World Class Manufacturing</td>
</tr>
<tr>
<td>ADMF 201</td>
<td>Lean Manufacturing</td>
</tr>
<tr>
<td>ADMF 211</td>
<td>Quality Systems in Manufacturing</td>
</tr>
</tbody>
</table>

Certificate: Mechatronics Certification Level I

<table>
<thead>
<tr>
<th>Professional/Technical</th>
<th>(18 Credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMF 101</td>
<td>Key Principles of Advanced Manufacturing</td>
</tr>
<tr>
<td>ADMF 102</td>
<td>Technology in Advanced Manufacturing</td>
</tr>
<tr>
<td>ADMF 112</td>
<td>Mechatronics I</td>
</tr>
<tr>
<td>ADMF 122</td>
<td>Mechatronics II</td>
</tr>
<tr>
<td>ADMF 202</td>
<td>Mechatronics III</td>
</tr>
<tr>
<td>ADMF 222</td>
<td>Mechatronics IV</td>
</tr>
</tbody>
</table>
Agriculture

Program Description
Indiana's agriculture industry is high-growth and high tech. Changes in the business of agriculture and technologies used have tremendous potential for our economy, the environment—and your future. The agriculture AAS degree at Ivy Tech will immerse students in the field of agriculture by taking a core of 27 credit hours of agriculture courses and 18 credit hours of agriculture courses in one of four agriculture concentrations. Students will gain hands-on experience and knowledge through class room, laboratory and field trip activities in a small class size environment with highly educated and experience instructors in agricultural disciplines. A supervised agriculture internship is also required in the curriculum. This internship allows students to apply concepts learned in the classroom, while developing connections within the agriculture industry.

Sample Careers
Farm management, technical representative, meat processor

Degrees Available
Associate of Science, Associate of Applied Science

Concentrations Offered
None

Availability of degrees varies by campus.
Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Agriculture is available with Purdue University. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/. Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 67 credits in the following areas:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core</td>
<td>19</td>
</tr>
<tr>
<td>Professional/Technical Core</td>
<td>33</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>67</strong></td>
</tr>
</tbody>
</table>

General Education (19 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 101 Introductory Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>COMM 1XX Communications Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111 English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1XX Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1XX Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>SCIN 1XX Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>XXXX XXXX Humanities/Social and Behavioral Sciences Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical (48 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRI 100 Introduction to Agriculture</td>
<td>2</td>
</tr>
<tr>
<td>AGRI 101 Agricultural Data Management</td>
<td>3</td>
</tr>
<tr>
<td>AGRI 110 Introductory Agricultural Business and Economics</td>
<td>3</td>
</tr>
<tr>
<td>AGRI 111 Introduction to Crop Production</td>
<td>3</td>
</tr>
<tr>
<td>AGRI 113 Introduction to Animal Science</td>
<td>3</td>
</tr>
<tr>
<td>AGRI 114 Introduction to Agricultural Systems</td>
<td>3</td>
</tr>
<tr>
<td>AGRI 117 Soil Science</td>
<td>3</td>
</tr>
<tr>
<td>AGRI 200 Precision Farming Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Regionally Determined Credits: 15
Program Description
The Automotive Technology program offers exciting careers and unlimited opportunities. Through the use of modern equipment and A.S.E. master certified instructors, students learn how to diagnose and repair the modern automobile. This is a "hands-on" training program that allows plenty of lab time to develop the skills needed to be a successful automotive technician.

Sample Careers
Body repair technician, insurance adjuster, damage appraiser, automotive service and sales manager

Degrees Available
Associate of Science, Associate of Applied Science, Technical Certificate

Certificates Offered
Automotive Electrical/Electronics. Brakes and Suspension, Engine Performance, Power Train

Concentrations Offered
Alternative Fuel Technician, Auto Body Repair, Auto Service, Automotive Service Management, Dealer Co-op, Heavy Truck/Diesel, Motorsports

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Automotive Technology is available with Indiana State University. To view this Associate of Science transfer degree program and to see if it is available at your local Ivy Tech campus, students should go to http://www.ivytech.edu. Students are encouraged to review this option with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 67-69 credits in the following areas:

- General Education Core 19-20
- Professional/Technical Core 24
- Concentration Courses 12
- Regionally Determined Credits 12-13

General Education (19-20 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- ENGL 111 English Composition 3
- MATH 1XX Life Skills Elective 1
- SCIN 111 Physical Science 3

or
- SCIN 101 Science of Traditional and Alternative Energy 4
- XXXX XXX General Education Elective 3
- XXXX XXX Humanities/Social and Behavioral Sci. Elective 3

Professional/Technical (24 Credits)
- AUTC 101 Steering and Suspension Systems 3
- AUTC 107 Engine Principles and Design 3
- AUTC 109 Engine Performance I 3
- AUTC 113 Electrical and Electronics I 3

Choose One of the Following Concentrations

Alternative Fuel Technician (24-25 Credits)
An alternative fuel technician needs an understanding of traditional vehicle maintenance and repair skills combined with knowledge of alternative fuel systems. This concentration will offer training in safe handling of fuel systems and problem solving techniques.

- AUTC 103 Principles of Alternative/Renewable Energies 3
- AUTC 106 Compressed Natural Gas I 3
- AUTC 210 Electric and Hybrid Vehicles 3
- Regionally Determined Credits 12-13

Automotive Service Management Concentration (24-25 Credits)
Automotive shops operate at their best when they're run smoothly. This concentration will help you develop the necessary wide variety of managerial and technical skills, such as hiring, training, supervision, inventory control, computing, and budget management.

- ACCT 101 Financial Accounting 3
- AUTC 253 Service Organization and Parts 3
- BUSN 101 Introduction to Business 3
- MKTG 101 Principles of Marketing 3
- Regionally Determined Credits 12-13

Auto Service Concentration (24-25 Credits)
Modern cars need trained technicians to diagnose and repair them. This concentration offers "hands-on" training in engine rebuilding, fuel injection, automatic transmission/transaxle, computer engine control diagnosis and more.

- AUTC 127 Engine Repair 3
- AUTC 209 Engine Performance II 3
- AUTC 219 Engine Performance III 3
- AUTC 243 Advanced Electronics 3
- Regionally Determined Credits 12-13
# Automotive Technology continued

## Auto Body Repair Concentration (24-25 Credits)
Unibody construction and synthetic materials have made advanced training in automotive body repair important for those just entering the fields as well as for those who are currently working. This concentration is designed to teach the skills you need to repair today’s auto body.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AUBR 101</td>
<td>Body Repair Fundamentals</td>
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</tr>
<tr>
<td>AUBR 103</td>
<td>Auto Paint Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>AUBR 125</td>
<td>Automotive Body Welding</td>
<td>3</td>
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<tr>
<td>^ AUBR 207</td>
<td>Automotive Painting Technology</td>
<td>3</td>
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<td></td>
<td>Regionally Determined Credits</td>
<td>12-13</td>
</tr>
</tbody>
</table>

## Dealer Co-Op Concentration (24-25 Credits)
This ASE/NATEF master certified training program allows you to choose one of the cooperative education specialties which combine classroom and lab training at the college with hands-on work experience at an independent service facility or franchise dealership.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>^ AUTC 243</td>
<td>Advanced Electronics</td>
<td>3</td>
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<tr>
<td>AUTC 274</td>
<td>Cooperative - Electrical Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 276</td>
<td>Cooperative - Engine Performance</td>
<td>3</td>
</tr>
<tr>
<td>TECH 104</td>
<td>Computer Fundamentals for Technology</td>
<td>3</td>
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<td></td>
<td>Regionally Determined Credits</td>
<td>12-13</td>
</tr>
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</table>

## Heavy Truck/Diesel Concentration (24-25 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRCK 101</td>
<td>Heavy Truck Steering and Suspension</td>
<td>3</td>
</tr>
<tr>
<td>TRCK 127</td>
<td>Diesel Engine Repair</td>
<td>3</td>
</tr>
<tr>
<td>^ TRCK 219</td>
<td>Diesel Engine Performance</td>
<td>3</td>
</tr>
<tr>
<td>TRCK 224</td>
<td>Heavy Truck Electrical Systems</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12-13</td>
</tr>
</tbody>
</table>

## Motorsports Concentration (24-25 Credits)
Do you like fast cars? Want to work with automotive, aviation, marine, motorcycle, motorsports and racing industries? This training program offers the education demanded by employers. By combining lessons in the classroom with practical hands-on experience in the lab or at the track, you will set your career in gear.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTC 149</td>
<td>Introduction to Motor Sports</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 250</td>
<td>Motor Sports Fabrication I</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 254</td>
<td>High Performance Engines/Systems I</td>
<td>3</td>
</tr>
<tr>
<td>^ AUTC 267</td>
<td>Motorsports Project</td>
<td>3</td>
</tr>
</tbody>
</table>

### Regionally Determined Credits 12-13

#### Technical Certificate
To earn this degree, you must have 31 credits in the following areas:

**General Education Core**
- Regionally Determined Credits 12-13
- Credits 12-13

**Technical Certificate Requirements**
- **AUTC 101** Fundamentals of Public Speaking 3
- **IVYT 1XX** Life Skills Elective 1
- **XXXX XXX** Humanities/Social and Behavioral Sci. Elective 3

#### Professional/Technical Core (3 Credits)
- **AUTC 101** Steering and Suspension Systems 3

**Choose One of the Following Concentrations**

#### Alternative Fuel Technician Concentration (21 Credits)
- **AUTC 113** Electrical and Electronics I 3
- **AUTC 121** Braking Systems 3
- Regionally Determined Credits 15

#### Auto Body Repair Concentration (21 Credits)
- **AUBR 101** Body Repair Fundamentals 3
- **AUBR 103** Auto Paint Fundamentals 3
- Regionally Determined Credits 15

#### Automotive Service Management Concentration (21 Credits)
- **AUTC 113** Electrical and Electronics I 3
- **AUTC 121** Braking Systems 3
- Regionally Determined Credits 15

#### Heavy Truck/Diesel Concentration (21 Credits)
- **AUTC 113** Electrical and Electronics I 3
- **TRCK 121** Braking Systems 3
- Regionally Determined Credits 15

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### Motorsports Concentration (21 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTC 107</td>
<td>Engine Principles and Design</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 113</td>
<td>Electrical and Electronics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>15</td>
</tr>
</tbody>
</table>

### Certificates

#### Automotive Electrical/Electronics (18 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTC 109</td>
<td>Engine Performance I</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 113</td>
<td>Electrical and Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 123</td>
<td>Electrical and Electronics II</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 201</td>
<td>Climate Control Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 209</td>
<td>Engine Performance II</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 219</td>
<td>Engine Performance III</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Brakes and Suspension (18 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTC 101</td>
<td>Steering and Suspension Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 109</td>
<td>Engine Performance</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 113</td>
<td>Electrical and Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 121</td>
<td>Braking Systems</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 123</td>
<td>Electrical and Electronics II</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 145</td>
<td>Powertrain Service</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Engine Performance (18 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTC 107</td>
<td>Engine Principles and Design</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 109</td>
<td>Engine Performance</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 113</td>
<td>Electrical and Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 209</td>
<td>Engine Performance II</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 219</td>
<td>Engine Performance III</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 229</td>
<td>Driveability Diagnosis</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Power Train (18 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTC 107</td>
<td>Engine Principles and Design</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 113</td>
<td>Electrical and Electronics I</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 125</td>
<td>Manual Drivetrains</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 127</td>
<td>Engine Repair</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 135</td>
<td>Automotive Transmission</td>
<td>3</td>
</tr>
<tr>
<td>AUTC 145</td>
<td>Powertrain Service</td>
<td>3</td>
</tr>
</tbody>
</table>
## Program Description
The Aviation Maintenance Technology program will prepare you to become a certified Aviation Technician with ratings for Airframe or Powerplant. The course of instruction introduces control methods, team building, technical writing and computer skills.

### Sample Careers
Employment with commercial air carriers and private maintenance operations

### Degrees Available
Associate of Applied Science

### Concentrations Offered
Airframe, Powerplant

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

---

### Associate of Applied Science
To earn this degree, you must have 72-76 credits in the following areas:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core</td>
<td>20-21</td>
</tr>
<tr>
<td>Professional/Technical Core</td>
<td>18</td>
</tr>
<tr>
<td>Concentration Courses</td>
<td>34-37</td>
</tr>
</tbody>
</table>

### General Education (20-21 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVIT 101</td>
<td>Aviation Basics I</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 142</td>
<td>Aviation Basics II</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 144</td>
<td>Aircraft Electricity</td>
<td>5</td>
</tr>
<tr>
<td>AVIT 145</td>
<td>Aircraft Ground Servicing</td>
<td>2</td>
</tr>
<tr>
<td>AVIT 146</td>
<td>Aviation Regulations</td>
<td>2</td>
</tr>
<tr>
<td>AVIT 148</td>
<td>Aviation Materials and Processes</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>IVY 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 121</td>
<td>Geometry-Trigonometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 131</td>
<td>Algebra/Trigonometry I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 101</td>
<td>Physics I</td>
<td>4</td>
</tr>
<tr>
<td>XXXX XXX</td>
<td>Humanities/Social and Behavioral Sci. Elect.</td>
<td>3-4</td>
</tr>
</tbody>
</table>

### Professional/Technical (18 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVIT 222</td>
<td>Nonmetallic Structures</td>
<td>6</td>
</tr>
<tr>
<td>AVIT 226</td>
<td>Airframe Electrical Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 227</td>
<td>Aircraft Sheetmetal</td>
<td>8</td>
</tr>
<tr>
<td>AVIT 228</td>
<td>Aircraft Instruments and Avionics</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 241</td>
<td>Aircraft Fuel System and Welding Practices</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 242</td>
<td>Aircraft Inspection and Rigging</td>
<td>5</td>
</tr>
<tr>
<td>AVIT 243</td>
<td>Aircraft Hydraulic and Pneumatic Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 244</td>
<td>Aircraft Landing Gear Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 245</td>
<td>Aircraft System</td>
<td>3</td>
</tr>
</tbody>
</table>

### Powerplant Concentration (34 Credits)
The powerplant concentration prepares you for working on aircraft piston and turbine engines and their associated systems. At the completion of this concentration, you are eligible to take the Federal Aviation Administration’s exams. Successful completion of the FAA exams will earn the student a FAA mechanics certificate with powerplant rating.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVIT 231</td>
<td>Reciprocating Powerplants</td>
<td>7</td>
</tr>
<tr>
<td>AVIT 232</td>
<td>Turbine Powerplants</td>
<td>7</td>
</tr>
<tr>
<td>AVIT 233</td>
<td>Powerplant Fuel and Induction Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 235</td>
<td>Powerplant Fluid and Indicating Systems</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 237</td>
<td>Propellers</td>
<td>5</td>
</tr>
<tr>
<td>AVIT 251</td>
<td>Engine Cooling and Exhaust</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 252</td>
<td>Engine Install, Conformity, and Ignition</td>
<td>3</td>
</tr>
<tr>
<td>AVIT 253</td>
<td>Engine Starting System</td>
<td>3</td>
</tr>
</tbody>
</table>

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[Image: Ivy Tech Community College Logo]
Biotechnology

Program Description
Do you want a career on the cutting edge? The biotechnology program will prepare you to work in a variety of life science laboratory settings. Emphasis is placed on learning applications such as analysis of biological molecules, use of bioreactors and fermentors, recombinant DNA technology, generation of cell cultures and safe operation of laboratory equipment.

Sample Careers
Clinical or Laboratory Technician

Degrees Available
Associate of Science, Associate of Applied Science

Concentrations Offered
Regulatory Affairs, Technical

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Biotechnology is available with IUPUI. To view this Associate of Science transfer degree program and to see if it is available at your local Ivy Tech campus, students should go to http://www.ivytech.edu.

Students are encouraged to review this option with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 67-68 credits in the following areas:

- General Education Core: 23-24
- Professional/Technical Core: 20
- Concentration Courses: 12
- Regionally Determined Credits: 12

General Education (23-24 Credits)

- COMM 101 Fundamentals of Public Speaking 3
- or
- COMM 102 Introduction to Interpersonal Communication 3
- CHEM 105 General Chemistry I 5
- CHEM 106 General Chemistry II 5
- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 1
- MATH 133 College Algebra with Analytic Geometry 4
- or
- MATH 136 College Algebra 3
- XXXX XXXX Humanities/Social and Behavioral Sci. Elective 3

Professional/Technical (20 Credits)

- BIOL 121 General Biology 4
- BIOT 101 Introduction to Biotechnology 4
- BIOT 103 Safety and Regulatory Compliance for Biotechnology 3

Choose One of the Following Concentrations

Regulatory Affairs (24 Credits)

- BIOT 214 Food and Drug Law 3
- BIOT 215 Clinical Trials 3
- BIOT 216 Risk Management for Drugs and Medical Devices 3
- ENGL 211 Technical Writing 3
- Regionally Determined Credits 12

Technical (24 Credits)

- BIOT 201 Cell Culture and Cellular Processes 4
- BIOT 227 Genetic Engineering and DNA Analysis 4
- BIOT 233 Protein Analysis and Purification 4
- Regionally Determined Credits 12
Building Construction Management

Program Description
The Building Construction Management program will prepare you for work in residential, commercial and industrial construction and construction consulting. Emphasis is placed on building a foundation in materials science, concrete and soil technology, statics and strength of materials science, surveying and building fabrication.

Sample Careers
Field engineer, Estimator

Degrees Available
Associate of Science, Associate of Applied Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Building Construction Management is available with Indiana State University. To view this Associate of Science transfer degree program and to see if it is available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/.

Students are encouraged to review this option with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 63 credits in the following areas:
- General Education Core 21
- Professional/Technical Core 30
- Regionally Determined Credits 12

General Education (21 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 1
- MATH 121 Geometry - Trigonometry 3
- PHYS 101 Physics I 4
- XXXX XXXX Humanities/Social Science Elective 3
- SCIN 101 Science of Traditional and Alternate Energy 4

Professional/Technical (42 Credits)
- BCOM 102 Construction Graphics and Print Reading 3
- BCOM 104 Commercial and Industrial Construction 3
- BCOM 105 Concrete and Soils 3
- BCOM 115 Construction Management Practices 3
- BCOM 206 Construction Estimating 3
- BCOM 210 Codes and Specifications 3
- ^ BCOM 220 Project Planning and Control 3
- DESN 210 Surveying 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESN 221</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 222</td>
<td>Strength of Materials</td>
<td>3</td>
</tr>
<tr>
<td>XXXX XXXX</td>
<td>Humanities/Social Science</td>
<td>3</td>
</tr>
<tr>
<td>SCIN 101</td>
<td>Science of Traditional and Alternate Energy</td>
<td>4</td>
</tr>
<tr>
<td>BCOM 102</td>
<td>Construction Graphics and Print Reading</td>
<td>3</td>
</tr>
<tr>
<td>BCOM 104</td>
<td>Commercial and Industrial Construction</td>
<td>3</td>
</tr>
<tr>
<td>BCOM 105</td>
<td>Concrete and Soils</td>
<td>3</td>
</tr>
<tr>
<td>BCOM 115</td>
<td>Construction Management Practices</td>
<td>3</td>
</tr>
<tr>
<td>BCOM 206</td>
<td>Construction Estimating</td>
<td>3</td>
</tr>
<tr>
<td>BCOM 210</td>
<td>Codes and Specifications</td>
<td>3</td>
</tr>
<tr>
<td>^ BCOM 220</td>
<td>Project Planning and Control</td>
<td>3</td>
</tr>
<tr>
<td>DESN 210</td>
<td>Surveying</td>
<td>3</td>
</tr>
</tbody>
</table>
## Business Administration

### Program Description
Whether your career goal is to start your own business, to advance your career in an existing business, or to continue your education at a four-year institution, the Business Administration program can be a stepping stone on your path to success. The program provides outstanding career opportunities by giving you new job skills or by improving the ones you already possess.

### Sample Careers
Sales assistant, first line manager, real estate office assistant, restaurant assistant manager

### Degrees Available
Associate of Science, Associate of Applied Science, Technical Certificate

### Certificates Offered
Human Resource Management

### Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

### Associate of Science
Articulated transfer through an Associate of Science in Business Administration is available with Ball State University, Indiana State University, IU East, IU Kokomo, IU South Bend, IUPUI Columbus, IUPUI-Fort Wayne, Indiana Wesleyan University, Purdue University and the University of Southern Indiana. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to [http://www.ivytech.edu/](http://www.ivytech.edu/).

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

### Associate of Applied Science
To earn this degree, you must have 61-63 credits in the following areas:
- **General Education Core**: 19-21
- **Professional/Technical Core**: 42

### General Education (19-21 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>* ECON XXX</td>
<td>Economics Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>** MATH 1XX</td>
<td>Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Humanities/Social and Behavioral Sci Elective</td>
<td>3-4</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Life / Physical Sciences Elective</td>
<td>3-4</td>
</tr>
</tbody>
</table>

### Professional/Technical (42 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 102</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 102</td>
<td>Business Law</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 105</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 120</td>
<td>Business Ethics and Social Responsibility</td>
<td>3</td>
</tr>
</tbody>
</table>

### Associate of Applied Science via Distance Education
To earn this degree, you must have 61-63 credits in the following areas:
- **General Education Core**: 19-21
- **Professional/Technical Core**: 42

### General Education (19-21 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>* ECON XXX</td>
<td>Economics Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>** MATH 1XX</td>
<td>Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Humanities/Social and Behavioral Sci Elective</td>
<td>3-4</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Life / Physical Sciences Elective</td>
<td>3-4</td>
</tr>
</tbody>
</table>

### Professional/Technical (42 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>ACCT 102</td>
<td>Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 102</td>
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<td>BUSN 105</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 120</td>
<td>Business Ethics and Social Responsibility</td>
<td>3</td>
</tr>
</tbody>
</table>

***12 hours of School of Business program electives (prefixes ACCT, BANK, BUSN, CINS, CINT, INSC, LOGM, MKTG, OFAO, OPMT, SPMT) or 12 hours of self-directed courses with advisor approval.
## Business Administration continued

### Central Service Technician

#### Program Description
Find your place in the ever-growing healthcare industry. Central service departments are the center of all activity surrounding supplies and equipment needed in surgery and other patient care areas. You would have a major role in preventing infections by cleaning, decontaminating, assembling, sterilizing, and packaging all instruments used during surgery.

#### Sample Careers
Central Service Technician

#### Degrees Available
Technical Certificate

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

---

### Technical Certificate

To earn this degree, you must have 31 credits in the following areas:

<table>
<thead>
<tr>
<th>Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core</td>
<td>7</td>
</tr>
<tr>
<td>Professional/Technical Core</td>
<td>9</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td>15</td>
</tr>
</tbody>
</table>

#### General Education (7 Credits)

- **ENGL 111** English Composition 3
- IVYT 1XX Life Skills Elective 1
- XXXX XXXX Humanities/Social and Behavioral Sci. Elective 3

#### Professional/Technical (24 Credits)

- BUSN 101 Introduction to Business 3
- BUSN 105 Principles of Management 3
- CINS 101 Introduction to Microcomputers 3
- Regionally Determined Credits 15

---

### Certificate

#### Human Resources Management (21 Credits)

- BUSN 101 Introduction to Business 3
- BUSN 105 Principles of Management 3
- BUSN 202 Human Resource Management 3
- BUSN 221 Principles of Employment 3
- BUSN 222 Benefits Administration 3
- BUSN 223 Occupational Safety and Health 3
- OPMT 211 Labor Relations 3

---

**Technical Certificate**

To earn this degree, you must have 36 credits in the following areas:

<table>
<thead>
<tr>
<th>Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core</td>
<td>7</td>
</tr>
<tr>
<td>Professional/Technical Core</td>
<td>29</td>
</tr>
</tbody>
</table>

#### General Education (7 Credits)

- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 1
- PSYC 101 Introduction to Psychology 3

#### Professional/Technical (29 Credits)

- CSTC 101 Infection Control Procedures 4
- CSTC 102 Surgical Instrumentation 2
- CSTC 103 Fundamentals of Health Careers 3
- CSTC 104 Clinical Applications I 3
- CSTC 105 Fundamentals of Central Service Technician Skills 4
- CSTC 106 Clinical Applications II 3
- CSTC 107 Application of Central Service Technician Skills 3
- CSTC 108 Clinical Applications III 4
- HLHS 101 Medical Terminology 3
Chemical Technology

Program Description
If you’re interested in science and mathematics, chemical technology could be for you. The focus of the program is using principles of science, math and technology to prepare and analyze samples in a variety of laboratory settings.

Sample Careers
Laboratory Technician, Forensic Technician

Degrees Available
Associate of Applied Science

Concentrations Offered
Chemical Laboratory Technician, Forensics Laboratory Technician

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 62 credits in the following areas:

- General Education Core 23
- Professional/Technical Core 22
- Concentration Courses 17

General Education (23 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 105</td>
<td>General Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 106</td>
<td>General Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>* COMM XXX</td>
<td>Communication Elective</td>
<td>3</td>
</tr>
<tr>
<td>* ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT XXX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 136</td>
<td>College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Humanities/Social and Behavioral Sci. Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical (22 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 211</td>
<td>Organic Chemistry I</td>
<td>5</td>
</tr>
<tr>
<td>CHMT 101</td>
<td>Industrial Laboratory Techniques</td>
<td>3</td>
</tr>
<tr>
<td>CHMT 170</td>
<td>Success in Science</td>
<td>1</td>
</tr>
<tr>
<td>CHMT 201</td>
<td>Industrial Instrumentation and Techniques I</td>
<td>3</td>
</tr>
<tr>
<td>CHMT 202</td>
<td>Industrial Instrumentation and Techniques II</td>
<td>3</td>
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<tr>
<td>CHMT 270</td>
<td>Professional Development</td>
<td>1</td>
</tr>
<tr>
<td>CHMT 280</td>
<td>Co-op/Internship</td>
<td>3</td>
</tr>
<tr>
<td>TECH 104</td>
<td>Computer Fundamentals for Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose One of the Following Concentrations

Chemical Laboratory Technician Concentration (17 Credits)
If you have an interest in science, mathematics, health, or technology, and have good communication skills, you may find success as a chemical lab technician. Chemical lab technicians work in laboratories and production facilities. They use state of the art technological equipment to gather and analyze data.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADMF 101</td>
<td>Key Principles of Advanced Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHMT 204</td>
<td>Presentation of Technical Issues</td>
<td>3</td>
</tr>
<tr>
<td>CHMT 207</td>
<td>Food, Drugs, and Polymers</td>
<td>3</td>
</tr>
<tr>
<td>CHMT 210</td>
<td>Quantitative Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Forensic Laboratory Technician Concentration (17 Credits)
The forensic laboratory technician concentration will help you develop skills of quantitative and qualitative analysis to be used in laboratories of police departments, crime scene investigation and morgues.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 212</td>
<td>Organic Chemistry II</td>
<td>5</td>
</tr>
<tr>
<td>CHMT 210</td>
<td>Quantitative Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 101</td>
<td>Introduction to the Criminal Justice Systems</td>
<td>3</td>
</tr>
<tr>
<td>FORN 101</td>
<td>Introduction to Forensic Science</td>
<td>3</td>
</tr>
<tr>
<td>FORN 203</td>
<td>Crime Methods and Techniques</td>
<td>3</td>
</tr>
</tbody>
</table>
Computer Information Systems

**Program Description**
Get the knowledge you need to meet today's business requirements in the computer world. The CIS curriculum is designed to provide a flexible and comprehensive education. You will be instructed in both theoretical concepts and practical applications. You also will become familiar with programming languages, operating systems, database management systems, and web design, as well as application programming concepts and practices.

**Sample Careers**
Information Manager, Website Manager, Computer Programmer

**Degrees Available**
Associate of Science, Associate of Applied Science
Technical Certificate

**Certificate Offered**
Database, Java Programming, Visual Programming
Web Management

**Concentrations Offered**
Database Management, Programmer/Analyst
Student Directed Studies, Web Management

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

**Associate of Science**
Articulated transfer through an Associate of Science in Computer Information Systems is available with Indiana State University, IUPUI, IUPUI-Columbus, IU East and the University of Southern Indiana. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

**Associate of Applied Science**
To earn this degree, you must have 62-65 credits in the following areas:

- General Education Core: 19
- Professional/Technical Core: 31
- Concentration Courses: 12-15

**General Education (19 Credits)**
- CINS 101 Fundamentals of Public Speaking: 3
- * ECON XXX Economics Elective: 3
- ENGL 111 English Composition: 3
- IVYT 1XX Life Skills Elective: 1
- ** MATH 1XX Mathematics Elective: 3
- * XXXX XXX Humanities/Social Sciences Elective: 3
- * XXXX XXX Life/Physical Sciences Elective: 3

**Professional/Technical (31 Credits)**
- ACCT 101 Financial Accounting: 3
- BUSN 101 Introduction to Business: 3
- CINS 101 Introduction to Microcomputers: 3
- CINS 102 Information Systems Fundamentals: 3
- CINS 113 Logic, Design and Programming: 3
- CINS 125 Database Design and Management: 3
- CINS 157 Web Site Development: 3
- CINS 203 Systems Analysis and Design: 3

**Choose One of the Following Concentrations**

**Database Management Concentration** (12-15 Credits)
The focus of the Database Management concentration is learning to work with the storage and management of electronic data. Emphasis is placed on learning database management systems software and understanding and recommending user system requirements and data storage methods.

Four courses from list:
- CINS 131 Structured Query Language: 3
- CINS 205 Database Design Using Oracle: 3
- CINS 215 Field Study: 3
- CINS 225 Advanced Database Management Systems: 3
- CINS XXX Programming Course Involving Database Manipulation: 3
- CINT 251 Introduction to Systems Security: 3
- CINS 280 Coop/Internship: 3-6

**Programmer/Analyst Concentration** (12 Credits)
Interested in learning a different language? Just like humans, computers speak their own languages. This concentration places emphasis on developing advanced programming skills, mastering a variety of computer languages.

Four courses from list:
- CINS 107 Microcomputer Programming: 3
- CINS 112 Introduction to Simulations and Game Development: 3
- CINS 118 Introduction to COBOL Programming: 3
- CINS 121 C/C++/C# Programming: 3
- CINS 122 RPG Programming Fundamentals: 3
- CINS 123 Assembler Language Programming: 3
- CINS 124 Pascal Programming: 3
- CINS 126 Shell Command Language for Programmers: 3
- CINS 131 Structured Query Language: 3
- CINS 136 Introduction to Java Programming: 3
- CINS 137 Visual Basic Programming: 3
- CINS 218 Advanced COBOL Programming: 3
- CINS 219 Advanced C/C++/C# Programming: 3
### Computer Information Systems continued

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 222</td>
<td>Advanced RPG Programming</td>
<td>3</td>
</tr>
<tr>
<td>CINS 236</td>
<td>Advanced JAVA Programming</td>
<td>3</td>
</tr>
<tr>
<td>CINS 237</td>
<td>Advanced Visual Basic Programming</td>
<td>3</td>
</tr>
<tr>
<td>CINS 238</td>
<td>Advanced Simulation and Game Development</td>
<td>3</td>
</tr>
<tr>
<td>CINS 253</td>
<td>Graphics Image Lab</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Student Directed Studies Concentration (12 Credits)

The student directed studies concentration allows you to select elective courses from a wide list of options, focusing on specific areas of interest.

**Four courses from the list:**
- ACCT XXX  Accounting Elective  0-12
- BUSN XXX  Business Elective  0-12
- CINS XXX  Computer Information Systems Elective  0-12
- CINT XXX  Computer Information Technology Elective  0-12
- CRIM XXX  Criminal Justice Elective  0-12
- EECT XXX  Electronics and Computer Technology  0-12
- ENGL 211  Technical Writing  0-3
- OFAD XXX  Office Administration Elective  0-12
- VISC XXX  Visual Communications Elective  0-12

#### Web Management Concentration (12 Credits)

Websites must be both appealing and functional. This concentration will help you develop the skills necessary to manage great websites. Those skills include graphic design, understanding of operating systems, principles in eBusiness and programming techniques.

**Four courses from the list:**
- BUSN 209  Introduction to e-Business  3
- CINS 136  Introduction to Java Programming  3
- CINS 137  Visual Basic Programming  3
- CINS 236  Advanced Java Programming  3
- CINS 253  Graphic Image Lab  3
- CINS 257  Advanced Web Site Development (required)  3
- CINS 258  Web Applications Programming  3
- CINS 259  Web Administration (required)  3
- CINS XXX  Web-based Programming Elective  3
- CINT 109  UNIX Operating System  3
- CINT 201  Advanced Operating Systems: LINUX (required)  3

#### Associate of Applied Science via Distance Education

To earn this degree, you must have 62 credits in the following areas:

- General Education Core 19
- Professional/Technical Core 31
- Regionally Determined Credits 12

#### General Education (19 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>* ECON XXX</td>
<td>Economics Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>** MATH 1XX</td>
<td>Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Humanities/Social Sciences Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Life/Physical Sciences Elective</td>
<td>3</td>
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</tbody>
</table>

#### Professional/Technical (43 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>CINS 101</td>
<td>Introduction to Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>CINS 102</td>
<td>Information Systems Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CINS 113</td>
<td>Logic, Design and Programming</td>
<td>3</td>
</tr>
<tr>
<td>CINS 125</td>
<td>Database Design and Management</td>
<td>3</td>
</tr>
<tr>
<td>CINS 157</td>
<td>Web Site Development</td>
<td>3</td>
</tr>
<tr>
<td>CINS 203</td>
<td>Systems Analysis and Design</td>
<td>3</td>
</tr>
<tr>
<td>CINS 279</td>
<td>Capstone Class</td>
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<tr>
<td>CINT 106</td>
<td>Microcomputer Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CINT 121</td>
<td>Network Fundamentals</td>
<td>3</td>
</tr>
</tbody>
</table>
| Regionally Determined Credits 12

#### Technical Certificate

To earn this degree, you must have 31 credits in the following areas:

- General Education Core 7
- Professional/Technical Core 3
- Concentration Courses 6
- Regionally Determined Credits 15

#### General Education (7 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1XX</td>
<td>Mathematics Elective</td>
<td>3</td>
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</tbody>
</table>

#### Professional/Technical (3 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 102</td>
<td>Information Systems Fundamentals</td>
<td>3</td>
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</tbody>
</table>

#### Concentration (6 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CINS 113</td>
<td>Logic, Design and Programming</td>
<td>3</td>
</tr>
<tr>
<td>CINS 106</td>
<td>Microcomputer Operating Systems</td>
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</table>

#### Locally Determined Courses (15 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS XXX</td>
<td>CINS Course Elective</td>
<td>12</td>
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<tr>
<td>CINS XXX or CINT XXX</td>
<td>CINS Course Elective</td>
<td>3</td>
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</tbody>
</table>

#### Certificate

#### Database (27 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>Introduction to Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>CINS 102</td>
<td>Information Systems Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CINS 113</td>
<td>Logic, Design and Programming</td>
<td>3</td>
</tr>
<tr>
<td>CINS 125</td>
<td>Database Design and Management</td>
<td>3</td>
</tr>
<tr>
<td>CINS 131</td>
<td>Structured Query Language</td>
<td>3</td>
</tr>
<tr>
<td>CINS 137</td>
<td>Visual Basic Programming</td>
<td>3</td>
</tr>
<tr>
<td>CINS 205</td>
<td>Database Design</td>
<td>3</td>
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<tr>
<td>CINS 225</td>
<td>Advanced Database Management Systems</td>
<td>3</td>
</tr>
<tr>
<td>CINS 237</td>
<td>Advanced Visual Basic Programming</td>
<td>3</td>
</tr>
</tbody>
</table>
## Computer Information Technology

### Program Description

IT careers are in abundance and the Computer Information Technology program will prepare you to get the career you want. You will develop skills in network management, network security, computer hardware support and operating system administration. You will be prepared to provide technical support to computer users, including hardware, network and operating system support.

### Sample Careers

- Computer support specialist

### Degrees Available

Associate of Applied Science, Technical Certificate

### Certificates Offered

- Network Administrator, PC Support and Administration
- Routing and Switching, Systems Security

### Concentrations Offered

- Computer Security, Network, PC Support and Administration
- Student Directed Studies

*Availability of concentrations and degrees varies by campus. Contact your local campus for more information.*

### Associate of Applied Science

To earn this degree, you must have 62-66 credits in the following areas:

- **General Education Core**: 19 credits
- **Professional/Technical Core**: 31 credits
- **Concentration Courses**: 12-16 credits

#### General Education (19 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>COMM 101</td>
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<td>ECON XXX</td>
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<tr>
<td>ENGL 111</td>
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<td>MATH 1XX</td>
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<tr>
<td>XXXX XXX</td>
<td>3</td>
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<tr>
<td>XXXX XXX</td>
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</tbody>
</table>

#### Professional/Technical (31 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>3</td>
</tr>
<tr>
<td>CINS 113</td>
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</tr>
<tr>
<td>CINS 203</td>
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<tr>
<td>CINT 106</td>
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<tr>
<td>CINT 121</td>
<td>3</td>
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<tr>
<td>CINT 201</td>
<td>3</td>
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<tr>
<td>CINT 210</td>
<td>3</td>
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<tr>
<td>CINT 211</td>
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<tr>
<td>CINT 225</td>
<td>3</td>
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<tr>
<td>CINT 251</td>
<td>3</td>
</tr>
<tr>
<td>CINT 279</td>
<td>1</td>
</tr>
</tbody>
</table>

#### Choose One of the Following Concentrations

**Computer Security Concentration** (12 Credits)

This concentration focuses on developing in-depth knowledge and technical skills related to network and information security.

- **Four courses from the list:**
  - CINT 252 Routers and Firewalls
  - CINT 253 Microsoft Network Security
  - CINT 254 Linux Network Security
  - CINT 271 Field Study
  - CINT 280 Co-op/Internship
  - CINT 2XX CINT Elective

### Course Listing

#### Java (21 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>3</td>
</tr>
<tr>
<td>CINS 102</td>
<td>3</td>
</tr>
<tr>
<td>CINS 113</td>
<td>3</td>
</tr>
<tr>
<td>CINS 125</td>
<td>3</td>
</tr>
<tr>
<td>CINS 136</td>
<td>3</td>
</tr>
<tr>
<td>CINS 157</td>
<td>3</td>
</tr>
<tr>
<td>CINS 236</td>
<td>3</td>
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</tbody>
</table>

#### Visual Programming (21 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>3</td>
</tr>
<tr>
<td>CINS 102</td>
<td>3</td>
</tr>
<tr>
<td>CINS 113</td>
<td>3</td>
</tr>
<tr>
<td>CINS 121</td>
<td>3</td>
</tr>
<tr>
<td>CINS 125</td>
<td>3</td>
</tr>
<tr>
<td>CINS 137</td>
<td>3</td>
</tr>
<tr>
<td>CINS 237</td>
<td>3</td>
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</tbody>
</table>

#### Web Management (27 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>3</td>
</tr>
<tr>
<td>CINS 102</td>
<td>3</td>
</tr>
<tr>
<td>CINS 125</td>
<td>3</td>
</tr>
<tr>
<td>CINS 157</td>
<td>3</td>
</tr>
<tr>
<td>CINS 257</td>
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<td>CINS 259</td>
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<td>CINS 106</td>
<td>3</td>
</tr>
<tr>
<td>CINS 121</td>
<td>3</td>
</tr>
<tr>
<td>CINS 201</td>
<td>3</td>
</tr>
</tbody>
</table>

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**IVY TECH Community College**
Computer Information Technology continued

Network Concentration (12-16 credits)
This concentration focuses on developing in-depth knowledge and technical skills related to creating and maintaining computer network systems.

Four courses from the list:
- CINT 125 Windows Client Operating System 3
- CINT 135 Novell Administration I 3
- CINT 136 Novell Advanced Administration 3
- CINT 140 Cisco Discovery: Networking for Home and Small Businesses 4
- CINT 141 Cisco Discovery: Working at a Small-to-Medium Business of ISP 4
- CINT 240 Cisco Discovery: Introducing Routing and Switching in the Enterprise 4
- CINT 241 Cisco Discovery: Designing and Supporting Computer Networks 4
- CINT 160 Cisco Exploration: Network Fundamentals 4
- CINT 161 Cisco Exploration: Routing Protocols and Concepts 4
- CINT 260 Cisco Exploration: LAN Switching and Wireless Access 4
- CINT 261 Cisco Exploration: Accessing the WAN 4
- CINT 226 Implementing & Administering a Windows Network Infrastructure 3
- CINT 227 Managing a Windows Network 3
- CINT 228 Administering Windows Directory Services 3
- CINT 235 Networking Technology Concepts 3
- CINT 236 Novell Hardware Service and Support 3
- CINT 237 Novell Administration III 3
- CINT 25X Security Elective (maximum 3 credit hours) 3

PC Support and Administration Concentration (12 credits)
This concentration focuses on developing in-depth knowledge and technical skills related to assisting computer users with software, hardware, and network needs.

Four courses from the list:
- CINS 125 Database Design and Management 3
- CINS 151 Integrated Business Software 3
- CINS 157 Web Site Development 3
- CINS 206 Project Development with High-Level Tools 3
- CINT 109 UNIX Operating Systems 3

Locally Determined Courses (15 credits)
- CINS XXX CINS Course Elective 3
- CINT XXX CINT Course Elective 3
- CINT XXX CINT Course Electives 12

Certificate

Network Administration (21 credits)
- CINS 101 Introduction to Microcomputers 3
- CINS 106 Microcomputer Operating Systems 3
- CINS 121 Network Fundamentals 3
- CINS 125 Windows Client Operating Systems 3
- CINS 225 Windows Network Operating Systems 3
- CINS 227 Managing a Windows Network 3
- CINS 251 Introduction to Systems Security 3

PC Support and Administration (21 credits)
- CINS 101 Introduction to Microcomputers 3
- CINS 106 Microcomputer Operating Systems 3
- CINS 121 Network Fundamentals 3
- CINS 125 Windows Client Operating Systems 3
- CINS 201 Advanced Operating Systems: Linux 3
- CINS 210 PC Technology Essentials 3
- CINS 211 IT Technician 3

Routing and Switching (16 credits)
Four courses from the list:
- CINT 140 Cisco Discovery: Networking for Home and Small Businesses 4
- CINT 141 Cisco Discovery: Working at a Small-to-Medium Business of ISP 4
- CINT 240 Cisco Discovery: Introducing Routing and Switching in the Enterprise 4
- CINT 241 Cisco Discovery: Designing and Supporting Computer Networks 4
- CINT 160 Cisco Exploration: Network Fundamentals 4
- CINT 260 Cisco Exploration: LAN Switching and Wireless Access 4
- CINT 261 Cisco Exploration: Accessing the WAN 4

Student Directed Studies Concentration (15 credits)
The student directed studies concentration allows students to select elective courses from a wide list of options, focusing on specific areas of interest.

- ACCT XXX Accounting Elective 0-12
- BUSN XXX Business Elective 0-12
- CINS XXX Computer Information Systems Elective 0-12
- CINT XXX Cisco Information Technology Elective 0-12
- EECT XXX Electronics Elective 0-12
- ENGL 211 Technical Writing 0-3
- IND 7X1 Industrial Technology Elective 0-12
- OFAD XXX Office Administration Elective 0-12
- VISC XXX Visual Communications Elective 0-12

Technical Certificate
To earn this degree, you must have 31 credits in the following areas:
- General Education Core 7
- Professional/Technical Core 3
- Concentration Courses 6
- Regionally Determined Credits 15

General Education (7 credits)
- ENGL 111 English Composition 3
- IVY 1XX Life Skills Elective 1
- MATH 1XX Mathematics Elective 3

Professional/Technical (3 credits)
- CINT 106 Microcomputer Operating Systems 3

Concentration (6 credits)
- CINT 121 Network Fundamentals 3
- CINT 225 Windows Network Operating Systems 3
Construction Technology

Program Description
The construction industry has placed new demands on the building industry. There is a need for employees skilled in estimating, writing specifications for building plans, layout and assembly of residential steel framing, and building restoration and renovation.

This program will give you the knowledge and skills necessary for job success either as a self-employed business person, or as an employee in home improvement centers, plumbing and electrical contractor, carpentry trades, or many other phases within the construction industry.

Sample Careers
HVAC Technician, carpenter, electrical installer

Degrees Available
Associate of Applied Science, Technical Certificate

Certificates Offered
Construction Technician

Concentrations Offered
Architectural, Cabinetry, Electrical, Heating, Ventilation, and Air Conditioning, Home Inspection, Landscape Technology, Residential and Light Carpentry

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associated of Applied Science
To earn this degree, you must have 63 credits in the following areas:

- General Education Core: 20
- Professional/Technical Core: 19
- Concentration Courses: 12
- Regionally Determined Credits: 12

General Education (20 Credits)
- COMM 101 Fundamentals of Public Speaking: 3
- ENGL 111 English Composition: 3
- IVYT 1XX Life Skills Elective: 1
- MATH 121 Geometry/Trigonometry: 3
- PHYS 100 Technical Physics: 4
- PHYS 101 Physics 1: 4
- ** SCIN 101 Science of Traditional and Alternative Energy: 4
- ** XXXX XXXX Humanities/Social and Behavioral Sci. Elective: 3
- ** XXXX XXXX Mathematics/Social & Behavioral Sci./Humanities/Life & Physical Sciences Elective: 3

Professional/Technical (19 Credits)
- CONT 101 Introduction to Construction Technology: 3
- CONT 102 Construction Materials: 3
- CONT 106 Construction Blueprint Reading: 3
- CONT 127 Electrical Basics: 3
- CONT 204 Estimating and Specifications: 3
- ^ CONT 279 Construction Technology Capstone Course: 1
- TECH 104 Computer Fundamentals for Technology: 3

Choose One of the Following Concentrations

Architectural Concentration (24 Credits)
Get prepared for a career in an architect's office. This coursework includes drafting, residential construction materials, commercial construction materials, geometry, technical math, production drawing, light, medium, and heavy construction drafting.

Four courses from the list:
- DESN 105 Architectural Design I: 3
- DESN 108 Residential Design: 3
- DESN 204 Architectural Design II: 3
- DESN 208 Structural Design and Detailing: 3
- Regionally Determined Credits: 12
### Construction Technology continued

#### Cabinetry Concentration (24 Credits)
This concentration places an emphasis on woodworking, design and installation. Learn to build and install cabinetry and to assist clients in selecting and designing residential and commercial cabinetry.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOT 120</td>
<td>Woodworking Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 121</td>
<td>Furniture Design and Construction</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 122</td>
<td>Woodworking Jig Layout</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 126</td>
<td>Furniture Door and Drawer Assembly</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Electrical Concentration (24 Credits)
This concentration can provide you with the knowledge and skills to gain employment as an electrical technician, installer or service provider. The focus of this program is residential and light commercial installation, troubleshooting and maintenance.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOT 201</td>
<td>Residential Wiring</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 213</td>
<td>Motor and Motor Controls</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 220</td>
<td>Electrical Troubleshooting Techniques</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 222</td>
<td>Commercial/Industrial Wiring</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Heating, Ventilation, and Air Conditioning Concentration (24 Credits)
This concentration provides theory and laboratory work in heating, ventilation, and air conditioning (HVAC). As a technician, you'll be prepared for employment in a variety of areas, including designing HVAC systems for residential, commercial, and industrial applications.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVAC 101</td>
<td>Heating Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>HVAC 103</td>
<td>Refrigeration I</td>
<td>3</td>
</tr>
<tr>
<td>HVAC 208</td>
<td>Heating Service</td>
<td>3</td>
</tr>
<tr>
<td>HVAC 211</td>
<td>Refrigeration II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Landscape Technology Concentration (24 Credits)
This concentration is designed to provide understanding and skill in the technical requirements for work in the "green industry." The curriculum is planned to prepare you for positions in landscape construction and management, golf course, park and cemetery maintenance.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAND 101</td>
<td>Landscape Trees</td>
<td>3</td>
</tr>
<tr>
<td>LAND 102</td>
<td>Shrubs and Other Plants</td>
<td>3</td>
</tr>
<tr>
<td>LAND 103</td>
<td>Landscape Management I</td>
<td>3</td>
</tr>
<tr>
<td>LAND 104</td>
<td>Turf Management I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Residential and Light Carpentry Concentration (24 Credits)
The Residential and Light Carpentry Specialty can provide you with the knowledge and skills you need for employment as a carpenter. You will study residential and commercial construction.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCOT 104</td>
<td>Floor and Wall Layout and Construction</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 105</td>
<td>Roof Construction</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 113</td>
<td>Interior Trim</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 114</td>
<td>Exterior Trim</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Surveying Concentration (24 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESN 103</td>
<td>CAD Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>DESN 106</td>
<td>Descriptive Geometry</td>
<td>3</td>
</tr>
<tr>
<td>DESN 210</td>
<td>Surveying</td>
<td>3</td>
</tr>
<tr>
<td>DESN 213</td>
<td>CAD Mapping</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Technical Certificate
To earn this degree, you must have 34 credits in the following areas:

**General Education** (7 Credits)

- **COMM 101** Fundamentals of Public Speaking 3
- **ENGL 111** English Composition 3
- **IYVT 1XX** Life Skills Elective 1
- **XXX XXXX** Math/Social Sciences/Humanities/Life/Physical Sciences Elective 3

**Professional/Technical** (3 Credits)

- **CONT 101** Introduction to Construction Technology 3

Choose One of the Following Concentrations

#### Architectural Concentration (24 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESN 105</td>
<td>Architectural Design I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Heating, Ventilation, and Air Conditioning Concentration (24 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVAC 101</td>
<td>Heating Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>HVAC 103</td>
<td>Refrigeration I</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Home Inspection Concentration (24 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BCOT 130</td>
<td>Home Inspection</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 131</td>
<td>Residential Building Codes</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Landscape Technology Concentration (24 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
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<td>LAND 103</td>
<td>Landscape Management I</td>
<td>3</td>
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<tr>
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</table>

#### Residential and Light Carpentry Concentration (24 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BCOT 104</td>
<td>Floor and Wall Layout and Construction</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 105</td>
<td>Roof Construction</td>
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<td>Regionally Determined Credits</td>
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</table>

#### Certificate

#### Construction Technician (21 Credits)

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>BCOT 104</td>
<td>Floor and Wall Layout and Construction</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 105</td>
<td>Roof Construction</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 114</td>
<td>Exterior Trim</td>
<td>3</td>
</tr>
<tr>
<td>BCOT 221</td>
<td>Furniture Design and Construction</td>
<td>3</td>
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<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>
Program Description

If you are looking for an opportunity for public service in a challenging job that involves personal responsibility, you may find success in the criminal justice field. Knowledge of sociology, psychology, government and law is helpful in preparing for this career.

Sample Careers
Corrections officer, law enforcement officer

Degrees Available
Associate of Science, Associate of Applied Science

Concentrations Offered
Corrections, Law Enforcement, Youth Services

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Criminal Justice is available with Indiana State University, Indiana University and IU-South Bend. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 61-62 credits in the following areas:

General Education Core 19
Professional/Technical Core 27
Concentration Courses 12
Regionally Determined Credits 3-4

General Education (19 Credits)

COMM 101 Fundamentals of Public Speaking 3
or COMM 102 Introduction to Interpersonal Communication 3
ENGL 111 English Composition 3
IVYT 1XX Life Skills Elective 1
* MATH 1XX Mathematics Elective 3
PSYC 101 Introduction to Psychology 3
or SOCI 111 Introduction to Sociology 3
* XXXX XXX Humanities Elective 3
* XXXX XXX Life/Physical Science Elective 3

Professional/Technical (27 Credits)

CRIM 101 Introduction to Criminal Justice Systems 3
CRIM 103 Cultural Awareness 3
CRIM 105 Introduction to Criminology 3

Associate of Applied Science - Concentrations

Choose One of the Following Concentrations

Corrections Concentration (15-16 credits)
Vigorous law enforcement and stringent sentencing rules have increased the number of people being held for trial or imprisoned for their crimes in the last decade. Corrections officers monitor people being detained for trial and those who have been imprisoned.

CRIM 230 Community-Based Corrections 3
CRIM 231 Special Issues in Corrections 3
CRIM 246 Legal Issues in Corrections 3

Regionally Determined Credits:
CRIM 280 Internship 4
CRIM XXX Criminal Justice Elective 3

Forensics Concentration (15 - 16 Credits)
Forensics officials assist in the criminal investigative process, assess crime scenes and evidentiary material, and testify in court. This concentration places emphasis on developing the skills needed to supplement traditional law enforcement roles with a specialization interest in forensics.

CRIM 113 Criminal Investigation 3
CRIM 117 Introduction to Forensics 3
CRIM 155 Introduction to Cyber Forensics 3
CRIM XXX Criminal Justice Elective 3

Regionally Determined Credits:
CRIM 280 Internship 4
CRIM XXX Criminal Justice Elective 3
Criminal Justice continued

Law Enforcement Concentration (15-16 Credits)

Law enforcement officials provide assistance, respond to emergency calls, investigate crime scenes, and testify in court. This concentration places emphasis on developing the skills needed to become a police officer, including law, community relations, procedural law and criminal investigations.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CRIM 113</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 210</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 220</td>
<td>3</td>
</tr>
<tr>
<td>CRIM XXX</td>
<td>3</td>
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</table>

Regionally Determined Credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 280</td>
<td>4</td>
</tr>
<tr>
<td>CRIM XXX</td>
<td>3</td>
</tr>
</tbody>
</table>

Youth Services Concentration (15-16 Credits)

This concentration will prepare you to work with youth offenders and their families as they navigate the judicial and correctional system. Youth services professionals strive to prevent youth offenders from committing future crimes by helping the youth and their families discover the causes of illegal behavior.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CRIM 150</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 250</td>
<td>3</td>
</tr>
<tr>
<td>CRIM 252</td>
<td>3</td>
</tr>
<tr>
<td>CRIM XXX</td>
<td>3</td>
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</tbody>
</table>

Regionally Determined Credits:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRIM 280</td>
<td>4</td>
</tr>
<tr>
<td>CRIM XXX</td>
<td>3</td>
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</tbody>
</table>

Dental Assisting

Program Description

The dental assistant is an integral part of the dental health care team. Dental assistants prepare a patient for an exam; pass instruments to the doctor; prepare dental materials; expose and develop X-rays; teach preventative dental care; sterilize instruments; and/or perform dental receptionist duties. You could be instrumental in helping a patient be less anxious about having a dental check-up. You could help a child understand why brushing their teeth is important.

Sample Careers

Dental assistant

Degrees Available

Technical Certificate

Concentrations Offered

None
Dental Hygiene

Program Description
The Ivy Tech Community College Dental Hygiene program educates a group of diverse dental hygiene students by providing a curriculum which reflects the core values of the profession, instills an understanding of life-long learning, and educates the graduate to assess, plan, implement, and evaluate dental hygiene care for the individual and the community. As a graduate of this program, you will be eligible to take national and state/regional examinations for licensure which are required to practice dental hygiene.

The dental hygienist is an integral part of the dental health care team who specializes in preventive dental care and techniques in oral hygiene. Common procedures performed by hygienists include cleaning, scaling and root planing, radiography, and application of dental sealants. Local dental regulations determine the duties hygienists are able to perform.

Sample Careers
Dental Hygienist

Degrees Available
Associate of Science

Concentrations Offered
None
Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 77 credits in the following areas:
General Education Core: 29
Professional/Technical Core: 48

General Education (29 Credits)
# APHY 101 Anatomy and Physiology I 3
# APHY 102 Anatomy and Physiology II 3
# BIOL 211 Microbiology I 3
# CHEM 111 Chemistry I 4
COMM 101 Fundamentals of Public Speaking 3
or
COMM 102 Introduction to Interpersonal Communication 3
# ENGL 111 English Composition 3
IVY 1XX Life Skills Elective 1
# MATH 118 Concepts in Mathematics 3
PSYC 101 Introduction to Psychology 3
SOCI 111 Introduction to Sociology 3

Professional/Technical (48 Credits)
DHYG 101 Fundamentals of Dental Hygiene 2
DHYG 102 Fundamentals of Dental Hygiene Lab 2
DHYG 103 Dental Radiology 2
DHYG 104 Dental Anatomy 2
DHYG 105 Nutrition and Oral Health 2
DHYG 106 Oral Histology and Embryology 1
DHYG 107 Head and Neck Anatomy 1
DHYG 109 Preventive Dentistry 1
DHYG 113 Dental Radiography Clinic I 1
DHYG 114 Dental Hygiene Clinic I 5
DHYG 120 Pharmacology 2
DHYG 121 Medical and Dental Emergencies 1
DHYG 122 General Pathology 1
DHYG 201 Community and Public Health Dentistry 2
DHYG 203 Dental Materials 2
DHYG 204 Pain Management 2

DHYG 208 Periodontology 2
DHYG 222 Oral Pathology 2
DHYG 224 Dental Hygiene Clinic II 5
DHYG 228 Dental Hygiene Clinical Procedures 1
DHYG 230 Clinic Seminar 2
DHYG 234 Dental Hygiene Clinic III 6
DHYG 235 Community Oral Health Practicum 1

* Courses must be successfully completed before admittance to the program.
Design Technology

Program Description
Would you like to work with architects, engineers and other allied design professionals? If so, the Design Technology Program provides the education and technical skills necessary for graduates to enter the design profession. You may choose from six concentrations including Architecture, Civil, Construction Engineering, Mechanical, CAD/CAM or Graphic Design. If you are interested in designing inspiring buildings, bridges or wonderful new products and enjoy computer modeling, animation and artistic graphics, consider a career in Design Technology.

Sample Careers
Designer, drafter, graphic designer, surveyor

Degrees Available
Associate of Science, Associate of Applied Science
Technical Certificate

Concentrations Offered
Architecture, Civil, CAD-CAM, Computer Graphics, Mechanical

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Design Technology is available with Indiana State University and Purdue Calumet. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 62-63 credits in the following areas:
- General Education Core: 20-21
- Professional/Technical Core: 18
- Concentration Courses: 12
- Regionally Determined Credits: 12

General Education (20-21 Credits)
- COMM 101: Fundamentals of Public Speaking 3
- ENGL 111: English Composition 3
- IVYT 1XX: Life Skills Elective 1

Choose two of the following:
- ** MATH 133: College Algebra 4
- ** MATH 134: Trigonometry 2
- ** MATH 136: College Algebra 3
- ** MATH 137: Trigonometry with Analytic Geometry 3
- PHYS 101: Physics I 4
- XXXX XXX: Humanities/Social and Behavioral Sci. Elective 3-4

***Advisor Approval

Professional/Technical (18 Credits)
- DESN 102: Technical Graphics 3
- DESN 103: CAD Fundamentals 3
- DESN 106: Descriptive Geometry 3

Choose One of the Following Concentrations

Architecture Concentration (24 Credits)
Everyone enjoys attractively designed residential areas, public parks, and playgrounds, college campuses, shopping centers, golf courses, parkways, and industrial parks. Architects help design these areas so that they are not only functional but beautiful and compatible with the environment as well.

- DESN 105: Architectural Design I 3
- DESN 109: Construction Materials and Specifications 3
- DESN 204: Architectural Design II 3
- DESN 208: Structural Design and Detailing 3
- Regionally Determined Credits 12

Civil Concentration (24 Credits)
The civil concentration places emphasis on construction materials, structural design and surveying. You will be prepared for employment with civil engineering firms, construction firms, surveying firms and highway departments.

- DESN 109: Construction Materials and Specifications 3
- DESN 210: Surveying 3
- DESN 213: CAD Mapping 3
- DESN 228: Civil I 3
- Regionally Determined Credits 12

Computer-Aided Design and Manufacturing Concentration (24 Credits)
Manufacturing or CAD/CAM design technologists translate engineers' and designers' ideas into graphic form. This places emphasis on using CNC programming, and CAD/CAM technology in design and manufacturing applications.

- ADMF 115: Materials and Processes for Manufacturing 3
- MTTC 208: CNC Programming I 3
- MTTC 220: CAD/CAM I 3
- MTTC 221: CAD/CAM II 3
- Regionally Determined Credits 12
Computer Graphics Concentration  (24 Credits)
This new concentration combines Technical Drawing and Fine Arts Drawing. You will be prepared to find employment as graphic illustrators and commercial artists who design parts catalogs, magazine and newspaper advertising, as well as entry level animation used in movie production.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DESN 130</td>
<td>Fundamentals of Computer Graphics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 132</td>
<td>Raster Imaging Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>DESN 133</td>
<td>Vector Imaging Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>DESN 230</td>
<td>Computer Modeling and Animation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

Mechanical Concentration  (24 Credits)
Mechanical disciplines work in many industries that vary by industry and function. Some specialties include applied mechanics, computer-aided design and manufacturing; energy systems; material handling systems; pressure vessel and piping systems; heating, refrigeration and air conditioning systems.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ADMF 115</td>
<td>Materials and Processes for Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>DESN 104</td>
<td>Mechanical Graphics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 214</td>
<td>Kinematics of Machinery</td>
<td>3</td>
</tr>
<tr>
<td>DESN 217</td>
<td>Design Process and Applications</td>
<td>3</td>
</tr>
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<td>Regionally Determined Credits</td>
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</tbody>
</table>

Associate of Applied Science via Distance Education
To earn this degree, you must have 62-63 credits in the following areas:

<table>
<thead>
<tr>
<th>General Education Core</th>
<th>20-21 Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/Technical Core</td>
<td>42 Credits</td>
</tr>
</tbody>
</table>

Architecture Concentration  (62-63 Credits)

General Education  (20-21 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
</tbody>
</table>

Choose two of the following:

*** MATH 133 College Algebra with Analytic Geometry 4
*** MATH 134 Trigonometry 2
*** MATH 136 College Algebra 3
*** MATH 137 Trigonometry with Analytic Geometry 3

Choose two of the following:

*** MATH 133 College Algebra with Analytic Geometry 4
*** MATH 134 Trigonometry 2
*** MATH 136 College Algebra 3
*** MATH 137 Trigonometry with Analytic Geometry 3

PHYS 101 Physics I 4

PHYS 101 Physics I 4

PHYS 101 Physics I 4

PHYS 101 Physics I 4

XXXX XXX Humanities/Social Sciences Elective 3 - 4

Professional/Technical Core  (42 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESN 102</td>
<td>Technical Graphics</td>
<td>3</td>
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<tr>
<td>DESN 103</td>
<td>CAD Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>DESN 105</td>
<td>Architectural Design I</td>
<td>3</td>
</tr>
<tr>
<td>DESN 106</td>
<td>Descriptive Geometry</td>
<td>3</td>
</tr>
<tr>
<td>DESN 109</td>
<td>Construction Materials and Specifications</td>
<td>3</td>
</tr>
<tr>
<td>DESN 204</td>
<td>Architectural Design II</td>
<td>3</td>
</tr>
<tr>
<td>DESN 220</td>
<td>Advanced CAD</td>
<td>3</td>
</tr>
<tr>
<td>DESN 221</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 222</td>
<td>Strength of Materials</td>
<td>3</td>
</tr>
<tr>
<td>DESN 225</td>
<td>Portfolio Preparation</td>
<td>3</td>
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Choose 3 courses from the list below:

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DESN 108</td>
<td>Residential Design</td>
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</tr>
<tr>
<td>DESN 113</td>
<td>Intermediate CAD</td>
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<tr>
<td>DESN 206</td>
<td>Mechanical and Electrical Equipment</td>
<td>3</td>
</tr>
<tr>
<td>DESN 209</td>
<td>Estimating</td>
<td>3</td>
</tr>
<tr>
<td>DESN 210</td>
<td>Surveying</td>
<td>3</td>
</tr>
<tr>
<td>DESN 213</td>
<td>CAD Mapping</td>
<td>3</td>
</tr>
<tr>
<td>DESN 228</td>
<td>Civil I</td>
<td>3</td>
</tr>
<tr>
<td>DESN 280</td>
<td>Co-Op/Internship</td>
<td>3</td>
</tr>
<tr>
<td>TECH 104</td>
<td>Computer Fundamentals for Technology</td>
<td>3</td>
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</tbody>
</table>

Computer-Aided Design and Manufacturing Concentration  (62-63 Credits)

General Education  (20-21 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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</tr>
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<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
</tbody>
</table>

Choose two of the following:

*** MATH 133 College Algebra with Analytic Geometry 4
*** MATH 134 Trigonometry 2
*** MATH 136 College Algebra 3
*** MATH 137 Trigonometry with Analytic Geometry 3

PHYS 101 Physics I 4

XXXX XXX Humanities/Social Sciences Elective 3 - 4
Design Technology continued

Professional/Technical Core (42 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESN 102</td>
<td>Technical Graphics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 103</td>
<td>CAD Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>DESN 106</td>
<td>Descriptive Geometry</td>
<td>3</td>
</tr>
<tr>
<td>DESN 220</td>
<td>Advanced CAD</td>
<td>3</td>
</tr>
<tr>
<td>DESN 221</td>
<td>Statics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 222</td>
<td>Strength of Materials</td>
<td>3</td>
</tr>
<tr>
<td>DESN 225</td>
<td>Portfolio Preparation</td>
<td>3</td>
</tr>
<tr>
<td>MTTC 208</td>
<td>CNC Programming I</td>
<td>3</td>
</tr>
<tr>
<td>MTTC 220</td>
<td>CAD/CAM I</td>
<td>3</td>
</tr>
<tr>
<td>MTTC 221</td>
<td>CAD/CAM II</td>
<td>3</td>
</tr>
<tr>
<td>TECH 101</td>
<td>Processes and Materials</td>
<td>3</td>
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Choose 3 courses from the list below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESN 104</td>
<td>Mechanical Graphics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 202</td>
<td>CAD Customization and Programming</td>
<td>3</td>
</tr>
<tr>
<td>DESN 214</td>
<td>Kinematics of Machinery</td>
<td>3</td>
</tr>
<tr>
<td>DESN 217</td>
<td>Design Process and Applications</td>
<td>3</td>
</tr>
<tr>
<td>DESN 227</td>
<td>Geometric Dimensioning and Tolerancing</td>
<td>3</td>
</tr>
<tr>
<td>DESN 280</td>
<td>Co-Op/Internship</td>
<td>3</td>
</tr>
<tr>
<td>INDT 104</td>
<td>Fluid Power Basics</td>
<td>3</td>
</tr>
<tr>
<td>INDT 113</td>
<td>Basic Electricity</td>
<td>3</td>
</tr>
<tr>
<td>TECH 104</td>
<td>Computer Fundamentals for Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

Mechanical Concentration (62-63 Credits)

General Education (20-21 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
</tbody>
</table>

Choose two of the following:

- MATH 133 College Algebra with Analytic Geometry 4
- MATH 134 Trigonometry 2
- MATH 136 College Algebra 3
- MATH 137 Trigonometry with Analytic Geometry 3
- PHYS 101 Physics I 4
- XXXX XXX Humanities/Social Sciences Elective 3 - 4

Professional/Technical Core (42 Credits)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>DESN 106</td>
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<tr>
<td>DESN 221</td>
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</tr>
<tr>
<td>DESN 225</td>
<td>Portfolio Preparation</td>
<td>3</td>
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<tr>
<td>TECH 101</td>
<td>Processes and Materials</td>
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<tr>
<td>DESN 113</td>
<td>Intermediate CAD</td>
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</tr>
<tr>
<td>DESN 202</td>
<td>CAD Customization and Programming</td>
<td>3</td>
</tr>
<tr>
<td>DESN 206</td>
<td>Mechanical and Electrical Equipment</td>
<td>3</td>
</tr>
<tr>
<td>DESN 210</td>
<td>Surveying</td>
<td>3</td>
</tr>
<tr>
<td>DESN 227</td>
<td>Geometric Dimensioning and Tolerancing</td>
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<td>TECH 104</td>
<td>Computer Fundamentals for Technology</td>
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</tr>
</tbody>
</table>

Technical Certificate

To earn this degree, you must have 31-32 credits in the following areas:

- General Education Core 7-8
- Professional/Technical Core 3
- Concentration Courses 6
- Regionally Determined Credits 15

Early Childhood Education

Program Description

The Early Childhood Education Program focuses on early child growth and development including adult-child relationships. Emphasis is placed on the development of skills and techniques for providing appropriate environments and care for young children. Instruction is provided in the physical, emotional, social, and cognitive areas of early childhood. The student develops competencies through classroom instruction, observation, and participation in early education and care settings.

Sample Careers

Work in settings such as child care, nursery school, Head Start, family child care, pediatrics, nanny care, infant/toddler care, resource and referral services.

Degrees Available

Associate of Science, Associate of Applied Science

Technical Certificate

Concentrations Offered

None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.
### Associate of Science

Articulated transfer through an Associate of Science in Early Childhood Education is available with Ball, State University, IU Kokomo, IPFW, IUPUI, Anderson University, Indiana State University, and the University of Southern Indiana. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer officer of their local Ivy Tech for further information.

### Associate of Applied Science

To earn this degree, you must have 67-68 credits in the following areas:
- General Education Core 19-20
- Professional/Technical Core 39
- Regionally Determined Credits 9

#### General Education (19-20 Credits)
- IVYT 1XX Life Skills Elective 1
- ENGL 111 English Composition 3
- COMM 101 Fundamentals of Public Speaking 3
- MATH 1XX Mathematics Elective 3
- SOCI 111 Introduction to Sociology 3
- XXXX XXX Life/Physical Science Elective 3
- XXXX XXX Humanities Elective 3-4

#### Professional/Technical (48 Credits)
- ECED 100 Introduction to Early Childhood Education 3
- ECED 101 Health, Safety and Nutrition 3
- ECED 103 Curriculum in the Early Childhood Classroom 3
- ECED 120 Child Growth and Development 3
- ECED 130 Developmentally Appropriate Guidance in a Cultural Context 3
- ECED 204 Families in Transition 3
- ECED 210 Early Childhood Administration 3
- ECED 230 The Exceptional Child 3
- ECED 233 Emerging Literacy 3
- ECED 243 Cognitive Curriculum 3
- ECED 260 Early Childhood Professional 3

#### Choose two of the following:
- ECED 105 CDA Process 3
- ECED 115 Indiana Youth Development (IYD) Process 3
- ECED 205 Early Care Practicum 3
- ECED 225 Infant and Toddler Practicum 3
- ECED 235 Preschool Practicum 3
- ECED 245 School Age Practicum 3
- ECED 255 Generalist Practicum 3
- Regionally Determined Credits 9

### Associate of Applied Science via Distance Education

To earn this degree, you must have 67-68 credits in the following areas:
- General Education Core 19-20
- Professional/Technical Core 48

#### General Education (19-20 Credits)
- ENGL 111 English Composition 3
- COMM 101 Fundamentals of Public Speaking 3
- MATH 1XX Mathematics Elective 3
- SOCI 111 Introduction to Sociology 3
- XXXX XXX Life/Physical Science Elective 3
- XXXX XXX Humanities Elective 3-4

#### Professional/Technical (48 Credits)
- ECED 100 Introduction to Early Childhood Education 3
- ECED 101 Health, Safety and Nutrition 3
- ECED 103 Curriculum in the Early Childhood Classroom 3
- ECED 120 Child Growth and Development 3
- ECED 130 Developmentally Appropriate Guidance in a Cultural Context 3
- ECED 200 Family-Teacher Partnerships 3
- ECED 204 Families in Transition 3
- ECED 210 Early Childhood Administration 3

#### Technical Certificate

To earn this degree, you must have 31 credits in the following areas:
- General Education Core 7
- Professional/Technical Core 15
- Regionally Determined Credits 9
Education

Program Description
With an Associate of Science degree in education, you will acquire knowledge of the teaching profession as well as a strong background in general education subjects required of teachers. You will be well prepared if you choose to transfer your degree to a bachelor's degree program in education.

By completing a core of educational foundation courses, general education requirements, and the Praxis I exam, you will be ready to enter baccalaureate degree programs as a junior ready to pursue your bachelor's degree in education.

Articulated transfer opportunities are available with the public four-year universities in Indiana. Additional opportunities for courses and program transfer may also be available. You should contact the transfer office of your local Ivy Tech for additional information.

Sample Careers
Substitute teacher, teacher assistant, transfer degree

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Electronic Engineering Technology

Program Description
The Electrical Engineering Technology program is designed to prepare students for a variety of careers in electronics engineering technology, such as computing, communications, process control, biomedical, energy management, and transportation. The program addresses needs for skilled technicians who can work with engineers and other technicians to implement electronic designs and to support engineering processes such as collecting, analyzing, and interpreting data, and troubleshooting various electronic systems. Graduates will be able to continue their education at Indiana University-Purdue University-Indianapolis (IUPUI) in a Bachelor of Science degree in Electrical Engineering Technology (BS-EET), and at Purdue North Central (PNC) in a Bachelor of Science degree in Engineering Technology (BS-ET).

Sample Careers
Skilled Technician, Transfer Degree

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 67 credits in the following areas:

General Education Core 29
Professional/Technical Core 38

General Education (29 Credits)

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 211</td>
<td>Technical Writing</td>
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<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
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<tr>
<td>MATH 136</td>
<td>College Algebra</td>
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<tr>
<td>MATH 137</td>
<td>Trigonometry with Analytic Geometry</td>
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<td>MATH 210</td>
<td>Calculus for Technology</td>
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<tr>
<td>PHYS 101</td>
<td>Physics I</td>
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<td>XXXX XXXX</td>
<td>Humanities/Social and Behavioral Sci, Elective</td>
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Professional/Technical Core (38 Credits)

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DESN 103</td>
<td>CAD Fundamentals</td>
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<tr>
<td>EECT 111</td>
<td>Introduction to Circuit Analysis</td>
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</tr>
<tr>
<td>EECT 112</td>
<td>Digital Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>EECT 121</td>
<td>Electronics Circuit Analysis</td>
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</tr>
<tr>
<td>EECT 122</td>
<td>Digital Applications</td>
<td>4</td>
</tr>
<tr>
<td>EECT 128</td>
<td>Introduction to C Programming</td>
<td>3</td>
</tr>
<tr>
<td>EECT 213</td>
<td>Introduction to Industrial Controls</td>
<td>3</td>
</tr>
<tr>
<td>EECT 222</td>
<td>Introduction to Microcontrollers</td>
<td>4</td>
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<tr>
<td>EECT 223</td>
<td>Electrical Machines</td>
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<td>Computer Troubleshooting</td>
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<td>EECT 279</td>
<td>Electrical Engineering Tech. Capstone</td>
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<tr>
<td>INDT 205</td>
<td>Programmable Controllers I</td>
<td>3</td>
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</table>
Electronics & Computer Technology

Program Description
The Electronics and Computer Technology program is structured to prepare you with the technical skills, general knowledge and critical thinking and problem-solving skills necessary to pursue a career and adapt to changes in the fields of computer and electronics systems in such industries as telecommunications, medicine, electrical service, industry, instrumentation and others using this type of technology.

Sample Careers
Engineering technician

Degrees Available
Associate of Science, Associate of Applied Science,

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Electronics Technology is available with Indiana State University, IUPUI-Fort Wayne, and the University of Southern Indiana. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu. Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus.

Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 63 credits in the following areas:

General Education Core 20
Professional/Technical Core 31
Regionally Determined Credits 12

General Education (20 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1XX</td>
<td>First Course in a Series</td>
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<tr>
<td>MATH 1XX</td>
<td>Second Course in a Series</td>
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<td>PHYS 101</td>
<td>Physics I</td>
<td>4</td>
</tr>
<tr>
<td>XXXX XXXX</td>
<td>Humanities/Social and Behavioral Sci. Elective</td>
<td>3</td>
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</table>

Professional/Technical (43 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EECT 101</td>
<td>Introduction to Electronics and Projects</td>
<td>3</td>
</tr>
<tr>
<td>EECT 111</td>
<td>Introduction to Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EECT 112</td>
<td>Digital Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>EECT 121</td>
<td>Electronics Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>EECT 122</td>
<td>Digital Applications</td>
<td>4</td>
</tr>
<tr>
<td>EECT 128</td>
<td>Introduction to C Programming</td>
<td>3</td>
</tr>
<tr>
<td>EECT 211</td>
<td>AC Electronics Circuit Analysis</td>
<td>4</td>
</tr>
</tbody>
</table>
Engineering Technology

Program Description
The Engineering Technology program will educate skilled technicians who will work with engineers and other technicians to design, implement, and support engineering processes. Activities such as collecting, analyzing, and interpreting data and troubleshooting complex integrated systems will be fundamental concepts in all coursework. As firms continue to seek new means of reducing costs and increasing productivity, demand for engineering technicians to analyze and improve production processes should increase. Students will develop basic and advanced skills appropriate to the application of science, technology, engineering, and math that will enable graduates to enter the workforce and/or transfer to a four-year engineering technology program. Graduates can continue their education at Purdue University Statewide programs.

Sample Careers
Process Designer, Process Technician, Product Designer, Research Associate

Degrees Available
Associate of Science

Concentrations Offered
None.

Availability of degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 67 credits in the following areas:
- General Education Core 33
- Professional/Technical Core 34

General Education (33 Credits)
- COMM 101 Fundamentals of Public Speaking (transferIN) 3
- ENGL 111 English Composition (transferIN) 3
- COMM 202 Small Group Communications 3
- IVY 1XX Life Skills Elective 1
- MATH 136 College Algebra (transferIN) 3
- MATH 137 Trigonometry with Analytic Geometry (transferIN) 3
  or
- MATH 221 Calculus for Technology I 3
- MATH 222 Calculus for Technology II 3
- PHYS 101 Physics I (transferIN) 4
- PHYS 102 Physics II (transferIN) 4
- XXXX XXX Humanities Elective (transferIN) 3
- ECON 101 Economic Fundamentals (transferIN) 3

Professional/Technical (34 credits)
- BUSN 105 Principles of Management 3
- BUSN 208 Organizational Behavior 3
- CINS 113 Logic Design & Programming 3
- CINS 137 Visual Basic Programming 3
- DESN 103 CAD Fundamentals 3
- DESN 221 Statics 3
- DESN 223 Parametric Solid Monitoring 3
- EECT 111 Introduction to Circuits Analysis 4
- EECT 112 Digital Fundamentals 3
- METC 106 Introduction to Engineering Technology 3
- METC 143 Materials & Processes I 3
Fine Art

Program Description
The art/design/fashion industry captures the creative individual. Earn an associate degree in fine arts and cultivate your artistic skills—whether it is in fine arts, commercial art, film, fashion, or photography. Artists make careers everywhere that visual expression, flexible thinking and communication skills are in demand.

Sample Careers
Fine artists, such as painters, sculptors and illustrators

Degrees Available
Associate of Fine Arts

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Fine Arts
To earn this degree, you must have 61 credits in the following areas:

General Education Core 28
Concentration 33

General Education (28 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTH 101</td>
<td>Survey of Art and Culture I</td>
<td>3</td>
</tr>
<tr>
<td>ARTH 102</td>
<td>Survey of Art and Culture II</td>
<td>3</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 112</td>
<td>Exposition and Persuasion</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 118</td>
<td>Concepts in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SCIN 111</td>
<td>Physical Science</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 111</td>
<td>Introduction to Sociology</td>
<td>3</td>
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</tbody>
</table>

Professional/Technical (33 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARTS 100</td>
<td>Life and Object Drawing I</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 101</td>
<td>Life and Object Drawing II</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 102</td>
<td>Color and Design Theory</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 103</td>
<td>Three-Dimensional Design</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 104</td>
<td>Contemporary Art History</td>
<td>3</td>
</tr>
<tr>
<td>ARTS 2XX</td>
<td>Studio Electives</td>
<td>15</td>
</tr>
<tr>
<td>ARTS 2XX</td>
<td>Art History Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Contact your local campus for more information.
General Studies

Program Description
The General Studies program focuses on students taking their first two years of college at Ivy Tech and then transferring their credits to other colleges and universities both in state and out of state. General Studies’ students complete a core of general education courses which include: Fundamentals of Public Speaking, English Composition, Exposition and Persuasion, Mathematics and Life and Physical Sciences. Also students select from courses which include: History, Government and Politics, Psychology, Sociology and Philosophy.

Sample Careers
The General Studies program is designed as a transfer opportunity to bachelor’s degree-granting institutions.

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To view the Associate of Science in General Studies transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Science
To earn this degree, you must have 62-65 credits in the following areas:

General Education Core 34-37
Professional/Technical Core 28

General Education (34-37 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking (transferIN)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition (transferIN)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 112</td>
<td>Exposition and Persuasion (transferIN)</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>* MATH XXX</td>
<td>Mathematics Elective (transferIN)</td>
<td>3-6</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Humanities Elective (transferIN)</td>
<td>6</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Life/Physical Sci. Elective (transferIN)</td>
<td>6</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Social/Behavioral Sci. Elective (transferIN)</td>
<td>9</td>
</tr>
</tbody>
</table>

Professional/Technical (28 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>Introduction to Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>^ GENS 279</td>
<td>General Studies Capstone Course</td>
<td>1</td>
</tr>
<tr>
<td>* &amp; GENS XXX</td>
<td>Student Electives</td>
<td>24</td>
</tr>
</tbody>
</table>

^ Capstone Course
* Elective is defined as a course chosen by the student
* & Elective is defined as a course chosen by the student and no more than 15 credit hours maximum in any single course prefix
Health Care Support

Program Description
The Health Care Support program offers exciting opportunities for people who are considering entry into the health care field, as well as to current health care providers who want additional credentials or an Associate of Applied Science degree to complement their current skills. The program allows students to complete personal goals for attaining credentials required or preferred by employers in nearly all health care sectors—hospitals, long term care centers, physician practices, home care, and community services. Students may also complete the AAS degree, which offers courses relevant to many other health care professions, as well.

Sample Careers
Phlebotomists, pharmacy technicians, EMTs, Certified Nursing Assistants (CNA) and Qualified Medication Aides (QMA), home health specialists, massage therapists, or Electrocardiography Technicians (ECG).

Degrees Available
Associate of Applied Science, Certificate

Concentrations Offered
Clinical Support, Therapeutic Massage

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 61-64 credits in the following areas:

<table>
<thead>
<tr>
<th>General Education Core</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/Technical Core</td>
<td>18</td>
</tr>
<tr>
<td>Concentration Courses</td>
<td>24-27</td>
</tr>
</tbody>
</table>

General Education (19 Credits)
APHY 101 Anatomy and Physiology I 3
APHY 102 Anatomy and Physiology II 3
COMM 101 Fundamentals of Public Speaking or COMM 102 Introduction to Interpersonal Communication 3
ENGL 111 English Composition 3
IVYI 1XX Life Skills Elective 1
MATH 1XX Mathematics Elective 3
XXXX XXX Humanities or Social/Behavioral Science Elective 3

Professional/Technical (18 Credits)
CINS 101 Introduction to Microcomputers 3
HLHS 100 Introduction to Health Careers 3
HLHS 101 Medical Terminology 3
HLHS 105 Medical Law and Ethics 3
HLHS 111 Health and Wellness for Life 3
HLHS 211 Nutrition 3

Choose One of the Following Concentrations

Clinical Support Concentration (24-27 Credits)
Graduates in the Clinical Support Concentration will earn at least two certifications from the areas designated below. The combination of certifications will offer unique flexibility for students to meet the needs of employers in the current climate of change in the delivery of health care modalities.

Choose 3 to 18 credits

Dementia Care
HLHS 113 Dementia Care 3

Electrocardiography
HLHS 115 Pharmacology for Health Care Support 3
CARD 205 Introduction to Electrocardiography 3
CARD 206 Advanced Electrocardiography Technique 3
CARD 207 ECG Externship 3

Emergency Medical Technician
PARM 102 Emergency Medical Technician - Basic Training 7.5

Home Health Aide
HLHS 114 Home Health Aide 5

Pharmacy Technician
HLHS 115 Pharmacology for Health Care Support 3
PHAR 101 Pharmacy Technician I 3
PHAR 201 Pharmacy Technician II 3
PHAR 202 Pharmacy Technician Experiential Seminar 3

Phlebotomy
MEAS 219 Medical Assisting Laboratory Techniques 3
PHLB 212 Phlebotomy 3
PHLB 257 Phlebotomy Externship 3

Qualified Medication Aide
HLHS 117 QMA Preparation 5

Therapeutic Massage Concentration (27 credits)
The field of Therapeutic Massage is quickly evolving from a relatively new alternative medicine practice to a mainstream medical profession. This concentration prepares students to obtain both a national credential and state licensure for massage therapists, as required by Indiana law. Employment opportunities include private practice, chiropractor and physician offices, health clubs and spas, and manufacturing industries.

Choose 3 to 18 credits

TMAS 101 Holistic Approach to Massage Therapy 3
TMAS 120 Massage Technician Training I 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMAS 122</td>
<td>Massage Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>TMAS 125</td>
<td>Acupressure Theory and Methods</td>
<td>3</td>
</tr>
<tr>
<td>TMAS 140</td>
<td>Massage Technician Training II</td>
<td>3</td>
</tr>
<tr>
<td>TMAS 141</td>
<td>Massage Through the Life Span</td>
<td>3</td>
</tr>
<tr>
<td>TMAS 201</td>
<td>Sports Massage, Injuries and Hydrotherapies</td>
<td>3</td>
</tr>
<tr>
<td>TMAS 205</td>
<td>Pathology and Massage</td>
<td>3</td>
</tr>
</tbody>
</table>

**Choose one of the following:**
- TMAS 202 Deep Tissue Muscle Release 3
- TMAS 203 Herbs, Drugs and Massage 3
- TMAS 210 Biomechanics 3
- TMAS 220 Advanced Techniques and Hygiene 3

**Certificates**

**Electrocardiography Technician (21 credits)**
- APHY 101 Anatomy and Physiology I 3
- APHY 102 Anatomy and Physiology II 3
- HLHS 101 Medical Terminology 3
- HLHS 115 Pharmacology for Health Care Support 3
- CARD 205 Introduction to Electrocardiography 3
- CARD 206 Advanced Electrocardiograph Technique 3
- CARD 207 ECG Externship 3

**Pharmacy Technician (21 credits)**
- APHY 101 Anatomy and Physiology I 3
- APHY 102 Anatomy and Physiology II 3
- HLHS 101 Medical Terminology 3
- HLHS 115 Pharmacology for Health Care Support 3
- PHAR 101 Pharmacy Technician I 3
- PHAR 201 Pharmacy Technician II 3
- PHAR 202 Pharmacy Technician Experiential Seminar 3

**Patient Care (19 credits)**
- HLHS 106 Health Care Support Certifications 3
- HLHS 107 CNA Preparation 5
- HLHS 113 Dementia Care 3
- HLHS 114 Home Care Aide 5
- HUMS 120 Health and Aging 3

**Phlebotomy Technician (18 credits)**
- APHY 101 Anatomy and Physiology I 3

**Therapeutic Massage Technician (29 credits)**
- APHY 101 Anatomy and Physiology I 3
- APHY 102 Anatomy and Physiology II 3
- TMAS 101 Holistic Approach to Massage Therapy 3
- TMAS 105 Palpation Skills 2
- TMAS 120 Massage Technician Training I 3
- TMAS 125 Acupressure Theory and Methods 3
- TMAS 140 Massage Technician Training II 3
- TMAS 141 Massage Through the Life Span 3
- TMAS 201 Sports Massage, Injuries and Hydrotherapies 3
- TMAS 205 Pathology and Massage 3
Health Information Technology

Program Description
Healthcare professionals strive daily to provide real-time health care delivery and aid in health-related decision making. Helping provide that commitment of quality healthcare are health information management professionals who specialize in medical records management, privacy, risk management, medical coding, insurance reimbursement, corporate compliance, data analysis and reporting. Employment possibilities include physician offices, clinics, hospitals, long-term care facilities, rehabilitation centers, and other healthcare facilities that maintain, collect, and analyze healthcare data.

This Ivy Tech associate of science degree program has the input of employers who understand the demand for trained professionals committed to the timely, accurate, and secure collection of health information.

Sample Careers
Documentation specialist, Coder, HIM director, HIM department manager or supervisor

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 69 credits in the following areas:

General Education Core 25
Professional/Technical Core 44

General Education (25 Credits)
# APHY 101 Anatomy and Physiology I 3
APHY 102 Anatomy and Physiology II 3
# COMM 101 Fundamentals of Public Speaking 3
# ENGL 111 English Composition 3
ENGL 211 Technical Writing 3
IVYT 1XX Life Skills Elective 1
MATH 135 Finite Math 3
or MATH 136 College Algebra 3
PHIL 102 Introduction to Ethics 3
PSYC 101 Introduction to Psychology 3
or SOCI 111 Introduction to Sociology 3

Professional/Technical (44 Credits)
# CINS 101 Introduction to Microcomputers 3
CINS 102 Information Systems Fundamentals 3
HIMT 101 Health Information Systems 3
HIMT 102 Health Data Content and Structure 2
HIMT 104 Health Information and the Law 3
HIMT 105 Healthcare Organizations and Delivery Systems 3
HIMT 201 Reimbursement Systems 3
HIMT 202 Healthcare Data Literacy and Statistics 3
HIMT 203 ICD Coding 3
HIMT 204 Quality Assessment and Improvement 2
^ HIMT 205 Organization and Supervision 2
HIMT 207 Health Information Externship I 1
HIMT 208 Health Information Externship II 1
HIMT 210 Pathophysiology and Pharmacology I 3
HIMT 213 CPT Coding 3
HIMT 219 Pathophysiology and Pharmacology II 3
# HLHS 101 Medical Terminology 3

# Courses must be successfully completed before admittance to the program.
Homeland Security and Emergency Management

Program Description
Significant changes have occurred since September 2001. The Homeland Security and Emergency Management program is designed to address those changes and enhance the ability of individuals to prevent and respond safely and recover from natural or man-made disasters.

This program has been carefully designed with input from employers who know the demand of emergency management. In short, careers in emergency preparedness and response and environmental health and safety are in demand. Those benefiting from the associate degree are first responders, firefighters, military personnel, corrections and law enforcement professionals, emergency managers, those in the health care professions, as well as corporate and government workers.

Sample Careers
Environmental science and protection technicians, firefighters, first line supervisors of firefighting and prevention workers

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Sample Careers
- Environmental science and protection technicians
- Firefighters
- First line supervisors of firefighting and prevention workers

Degrees Available
- Associate of Science

Concentrations Offered
- None

Contact your local campus for more information.

General Education (25-27 Credits)
- MATH 1XX Mathematics Elective 3
- IVYT 1XX Life Skills Elective 1

Choose three of the following:
- COMM 101 Fundamentals of Public Speaking 3
- COMM 102 Introduction to Interpersonal Communication 3
- ENGL 111 English Composition 3
- ENGL 211 Technical Writing 3

Choose three of the following:
- PHIL 102 Introduction to Ethics 3
- POLS 101 Introduction to American Government and Politics 3
- POLS 112 State and Local Government 3
- PSYC 253 Introduction to Social Psychology 3
- SOCI 111 Introduction to Sociology 3

Choose one of the following:
- BIOL 201 General Microbiology I 4
- CHEM 105 General Chemistry 5
- CHEM 111 Chemistry I 4
- SCIN 111 Physical Science 3

Professional/Technical (39 Credits)
- HSEM 101 Introduction to Homeland Security 3
- HSEM 102 Principles of Emergency Management and Planning 3
- HSEM 103 Basic Skills in Emergency Program Management 3
- HSEM 104 Disaster and Terrorism Awareness 3
- HSEM 105 Introduction to Mitigation 3
- HSEM 106 Disaster Response and Recovery Operations 3
- HSEM 107 Exercise Program Design, Planning and Evaluation 3
- HSEM 108 Introduction to Emergency Medical Services Operations 3
- HSEM 213 Weapons of Mass Destruction and Hazardous Materials 3
- HSEM 214 Understanding the Incident Command System 3
- HSEM 215 Contingency Planning and Business Continuity 3
- HSEM 216 Public Information Officers Course 3
- HSEM 280 Internship 3
Hospitality Administration

Program Description
Event planning careers are for people with strong organizational and inter-personal skills, and who also enjoy the art of creating a functional and pleasant environment for customers attending an event. The hospitality administration concentration in event management provides training in budget management, organizational skills, management skills, communication skills, and how to coordinate the activities of many diverse groups of people and suppliers.

Sample Careers
Event planner, meeting planner, convention center coordinator or director, lodging manager

Degrees Available
Associate of Science, Associate of Applied Science Technical Certificate

Concentrations Offered
Baking & Pastry Arts, Culinary Arts, Event Management Hotel Management, Restaurant Management

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Hospitality Administration is available with Ball State University. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/. Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 69 credits in the following areas:
- General Education Core: 19
- Professional/Technical Core: 20
- Concentration Courses: 24-30
- Regionally Determined Credits: 0-6

General Education (19 Credits)
- ** COMM 101 Fundamentals of Public Speaking 3
- ** COMM 102 Introduction to Interpersonal Communication 3
- ENGL 111 English Composition 3
- IVTY 1XX Life Skills Elective 1
- ** MATH 1XX Mathematics Elective 3
- *** XXXX Life/Physical Science Elective 3
- *** XXXX Social/Behavioral Science Elective 3
- *** XXXX Humanities Elective 3

Professional/Technical (20 Credits)
- HOSP 101 Sanitation and First Aid 2
- HOSP 102 Basic Food Theory and Skills 3
- HOSP 104 Nutrition 3
- HOSP 108 Human Relations Management 3
- HOSP 201 Hospitality Purchasing and Cost Control 3
- HOSP 203 Menu, Design, and Layout 3
- HOSP 280 Co-op/Internship 3

Choose One of the Following Concentrations

Baking and Pastry Arts Concentration (30 Credits)
Restaurants, hotels, clubs, grocery stores, commercial, and independent shops are constantly seeking bakers and pastry chefs with the necessary skills and experience. This concentration is tailored to will prepare you to satisfy industry demands and American Culinary Federation Standards for Baker certification.

- HOSP 105 Introduction to Baking 3
- HOSP 106 Pantry and Breakfast 3
- HOSP 111 Yeast Breads 3
- HOSP 113 Baking Science 3
- HOSP 208 Cakes, Icings, and Fillings 3
- HOSP 209 Advanced Decorating and Candies 3
- HOSP 213 Classical Pastries and Chocolates 3
- HOSP 270 Bakery Merchandising 3
- Regionally Determined Credits 6

Culinary Arts Concentration (30 Credits)
Ivy Tech's excellent educational kitchen enables us to train you for entry-level positions, such as first, second or sauté cooks, sous chefs, and garde mangers. The goal is to send you into the food service industry equipped with manual, theoretical and technical competence.

- HOSP 103 Soup, Stock, and Sauces 3
- HOSP 105 Introduction to Baking 3
- HOSP 106 Pantry and Breakfast 3
- HOSP 110 Meat Fabrication 3
- HOSP 202 Fish and Seafood 3
- HOSP 207 Table Service 3
- HOSP 210 Classical Cuisine 3
- HOSP 212 Garde Manger 3
- HOSP 211 Specialized Cuisine 3
- HOSP 221 Catering Administration 3
- HOSP 213 Classical Pastries and Chocolates 3

Event Management Concentration (30 Credits)
Ivy Tech's excellent educational kitchen enables us to train you for entry-level positions, such as first, second or sauté cooks, sous chefs, and garde mangers. The goal is to send you into the food service industry equipped with manual, theoretical and technical competence.

- ACCT 101 Financial Accounting 3

General Education: 19 Credits
- ** COMM 101 Fundamentals of Public Speaking 3
- ** COMM 102 Introduction to Interpersonal Communication 3
- ENGL 111 English Composition 3
- IVTY 1XX Life Skills Elective 1
- ** MATH 1XX Mathematics Elective 3
- *** XXXX Life/Physical Science Elective 3
- *** XXXX Social/Behavioral Science Elective 3
- *** XXXX Humanities Elective 3

Professional/Technical: 20 Credits
- HOSP 101 Sanitation and First Aid 2
- HOSP 102 Basic Food Theory and Skills 3
- HOSP 104 Nutrition 3
- HOSP 108 Human Relations Management 3
- HOSP 201 Hospitality Purchasing and Cost Control 3
- HOSP 203 Menu, Design, and Layout 3
- HOSP 280 Co-op/Internship 3

Choose One of the Following Concentrations

Baking and Pastry Arts Concentration (30 Credits)
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- HOSP 105 Introduction to Baking 3
- HOSP 106 Pantry and Breakfast 3
- HOSP 111 Yeast Breads 3
- HOSP 113 Baking Science 3
- HOSP 208 Cakes, Icings, and Fillings 3
- HOSP 209 Advanced Decorating and Candies 3
- HOSP 213 Classical Pastries and Chocolates 3
- HOSP 270 Bakery Merchandising 3
- Regionally Determined Credits 6

Culinary Arts Concentration (30 Credits)
Ivy Tech's excellent educational kitchen enables us to train you for entry-level positions, such as first, second or sauté cooks, sous chefs, and garde mangers. The goal is to send you into the food service industry equipped with manual, theoretical and technical competence.

- HOSP 103 Soup, Stock, and Sauces 3
- HOSP 105 Introduction to Baking 3
- HOSP 106 Pantry and Breakfast 3
- HOSP 110 Meat Fabrication 3
- HOSP 202 Fish and Seafood 3
- HOSP 207 Table Service 3
- HOSP 210 Classical Cuisine 3
- HOSP 212 Garde Manger 3
- HOSP 211 Specialized Cuisine 3
- HOSP 221 Catering Administration 3
- HOSP 213 Classical Pastries and Chocolates 3

Event Management Concentration (30 Credits)
Ivy Tech's excellent educational kitchen enables us to train you for entry-level positions, such as first, second or sauté cooks, sous chefs, and garde mangers. The goal is to send you into the food service industry equipped with manual, theoretical and technical competence.

- ACCT 101 Financial Accounting 3
Hotel Management Concentration (30 Credits)
Hospitality at the basic level is simply the art of making guests feel welcome. It is the largest service industry in the nation and dramatic employment growth is expected both nationally and in Indiana. This concentration addresses your potential to become a successful manager.

ACCT 101 Financial Accounting 3
BUSN 102 Business Law 3
BUSN 105 Principles of Management 3
CINS 101 Introduction to Microcomputers 3
HOSP 114 Introduction to Hospitality 3
* HOSP 144 Travel Management 3
or
* BUSN 101 Introduction to Business 3
HOSP 207 Table Service 3
HOSP 215 Front Office 3
HOSP 217 Housekeeping 3
MKTG 101 Principles of Marketing 3

Restaurant Management Concentration (30 Credits)
Restaurant management training provides you with great opportunities to manage a complex operation and play the lead role in creating a great experience for your customers. This concentration includes courses in hotel and restaurant management, financial management, business, sales, food and beverage purchasing.

ACCT 101 Financial Accounting 3
BUSN 101 Introduction to Business 3
BUSN 102 Business Law 3
BUSN 105 Principles of Management 3
BUSN 208 Organizational Behavior 3
CINS 101 Introduction to Microcomputers 3
HOSP 114 Introduction to Hospitality 3

HOSP 207 Table Service 3
MKTG 101 Principles of Marketing 3
* OPMT 224 Operations Management 3
or
* MKTG 204 Marketing Management 3

Technical Certificate
To earn this degree, you must have 30 credits in the following areas:
General Education Core 7
Professional/ Technical Core 2
Concentration Courses 6-9
Regionally Determined Credits 12-15

General Education (7 Credits)
COMM 102 Introduction to Interpersonal Communication 3
or
ENGL 111 English Composition 3
IVYT 1XX Life Skills Elective 1
MATH 1XX Mathematics Elective 3

Professional/Technical (3 Credits)
HOSP 101 Sanitation and First Aid 2

Choose One of the Following Concentrations
Baking and Pastry Arts Concentration (21 Credits)
HOSP 105 Introduction to Baking 3
HOSP 113 Baking Science 3
HOSP 270 Bakery Merchandising 3
Regionally Determined Credits 12

Culinary Arts Concentration (21 Credits)
HOSP 102 Basic Foods Theory and Skills 3
HOSP 104 Nutrition 3
Regionally Determined Credits 15

Human Services

Program Description
If you're looking for a career that will allow you to help others, you may want to check out our Human Services program. It is designed to provide meaningful training for students interested in working with people. The program emphasizes the personal attitudes, technical knowledge, and practical skills necessary to obtain entry-level employment in a wide variety of social service settings. As human services paraprofessionals, graduates reach out to individuals, families and communities.

Career opportunities exist in local community mental health centers, psychiatric hospitals, group homes, substance abuse programs, government welfare agencies, correctional institutions, homeless shelters, and agencies serving the developmentally disabled.

Sample Careers
Social service worker, corrections counselor, counselor

Degrees Available
Associate of Science, Associate of Applied Science
Technical Certificate

Concentrations Offered
Correctional Rehabilitation Services, Direct Support Professional, Generalist, Gerontology, Mental Health, Substance Abuse, Indiana Youth Development Professional

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.
Human Services continued

Associate of Science
Articulated transfer through an Associate of Science in Human Services is available with Ball State University, Indiana State University, IUPUI-Fort Wayne, IUPUI and the University of Southern Indiana. To view these Associate of Science degree programs, students should go to www.ivytech.edu. Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Opportunities for course and program transfer may also be available at your local campus. Students should contact their local transfer office.

Associate of Applied Science
To earn this degree, you must have 62-63 credits in the following areas:
- General Education Core 19
- Professional/Technical Core 26
- Concentration Courses 12
- Regionally Determined Credits 5-6

General Education (19 Credits)
** BIOL 100 Human Biology 3
or
** BIOL 101 Introductory Biology 3
** COMM 101 Fundamentals of Public Speaking 3
** ENGL 111 English Composition 3
** IVTT 1XX Life Skills Elective 1
** MATH 1XX Mathematics Elective 3
** PSYC 101 Introduction to Psychology 3
** SOC1 111 Introduction to Sociology 3

Professional/Technical (26 Credits)
- CINS 101 Introduction to Microcomputers 3
- HUMS 101 Introduction to Human Services 3
- HUMS 102 Helping Relationship Techniques 3
- HUMS 103 Interviewing and Assessment 3
- HUMS 201 Internship I 4
- HUMS 202 Internship II 4
- HUMS 205 Behavior Modification/Choice Theory 3
- HUMS 206 Group Process and Skills 3
- HUMS 210 Internship I 4
- HUMS 212 Helping Relationship Techniques 3
- HUMS 213 Interviewing and Assessment 3
- HUMS 214 Internship II 4
- HUMS 215 Behavior Modification/Choice Theory 3
- HUMS 216 Group Process and Skills 3

Choose One of the Following Concentrations

Correctional Rehabilitation Services Concentration
(18 Credits)
This concentration prepares you to work in correctional facilities, courts, youth rehabilitation and crime prevention.
- HUMS 105 Introduction to Correctional Rehabilitation Services 3
- HUMS 111 Problems of Substance Abuse in Society 3
- HUMS 215 Juvenile Delinquency 3
- HUMS 240 Rehabilitation Process: Probation and Parole 3
- Regionally Determined Credits 6

Direct Support Professional Concentration
(17-18 Credits)
This concentration prepares you for a career at agencies that provide community-based services and support to individuals with developmental disabilities in a variety of settings including vocational, residential, and recreational.
- HUMS 116 Introduction to Disabilities 3
- HUMS 123 Health and Wellness/Disabilities 3
- HUMS 127 Positive Personal Support 3
- HUMS 128 Disability Support Teams 3
- Regionally Determined Credits 5-6

Generalist Concentration (18 Credits)
This concentration prepares you to find employment in a variety of settings, such as community centers, group homes, substance abuse centers, and assisted living facilities.
- HUMS 109 Understanding Diversity 3
- HUMS 113 Problems of Substance Abuse in Society 3
- HUMS 220 Issues and Ethics in Human Services 3
- PSYC 201 Lifespan Development 3
- Regionally Determined Credits 6

Gerontology Concentration (18 Credits)
- HUMS 108 Psychology of Aging 3
- HUMS 120 Health and Aging 3
- HUMS 130 Social Aspects of Aging 3
- HUMS 140 Loss and Grief 3
- Regionally Determined Credits 6

Indiana Youth Development Professional Concentration (18 Credits)
- IYDP 101 Child/Youth Development 3
- IYDP 102 Families and Communities 3
- IYDP 103 Health and Safe Environment 3
- IYDP 104 Content & Curriculum for the Youth Professional 3
- Regionally Determined Credits 6

Mental Health Concentration (18 Credits)
With a mental health concentration, you may find jobs in community mental health centers, crisis centers, residential facilities for the developmentally delayed, and services for the mentally ill.
- HUMS 114 Crisis Intervention 3
- HUMS 220 Issues and Ethics in Human Services 3
- PSYC 201 Lifespan Development 3
- PSYC 205 Abnormal Psychology 3
- Regionally Determined Credits 6

Substance Abuse Concentration (18 Credits)
With a concentration in substance abuse, you may find a job in substance abuse centers (residential, detox, hospitals) as counselors or counselors-in-training.
- HUMS 113 Problems of Substance Abuse in Society 3
- HUMS 208 Treatment Models of Substance Abuse 3
- HUMS 209 Counseling Issues in Substance Abuse 3
- HUMS 210 Issues of Substance Abuse in Family Systems 3
- Regionally Determined Credits 6

Associate of Applied Science via Distance Education
To earn this degree, you must have 63 credits in the following areas:
- General Education Core 19
- Professional/Technical Core 44

General Education (19 Credits)
** BIOL 100 Human Biology 3
or
** BIOL 101 Introductory Biology 3
** ENGL 111 English Composition 3
** IVTT 1XX Life Skills Elective 1
** MATH 1XX Mathematics Elective 3
** PSYC 101 Introduction to Psychology 3
** SOC1 111 Introduction to Sociology 3

Graduation with Honors
A GPA of 3.5 or above is required for graduation with honors.
Human Services continued

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>MATH TXX</td>
<td>Mathematics Elective</td>
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<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
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<td>SOCI 111</td>
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**Professional/Technical (44 Credits)**

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<tr>
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<td>HUMS 101</td>
<td>Introduction to Human Services</td>
<td>3</td>
</tr>
<tr>
<td># HUMS 102</td>
<td>Helping Relationship Techniques</td>
<td>3</td>
</tr>
<tr>
<td># HUMS 103</td>
<td>Interviewing and Assessment</td>
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<td>HUMS 109</td>
<td>Understanding Diversity</td>
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<td>HUMS 113</td>
<td>Problems of Substance Abuse In Society</td>
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<td># HUMS 201</td>
<td>Internship I</td>
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<td>#^ HUMS 202</td>
<td>Internship II</td>
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<td>HUMS 205</td>
<td>Behavior Modification/Choice Theory</td>
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<td># HUMS 206</td>
<td>Group Process and Skills</td>
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<tr>
<td>HUMS 208</td>
<td>Treatment Models of Substance Abuse</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 220</td>
<td>Issues and Ethics in Human Services</td>
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<tr>
<td>Regionally Determined Credits</td>
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# Courses not offered in an online format

**Technical Certificate**

To earn this degree, you must have 31 credits in the following areas:

- General Education Core 7
- Professional/Technical Core 3
- Concentration Courses 6-21
- Regionally Determined Courses 0-15

**General Education (7 Credits)**

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<thead>
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<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
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<tr>
<td>IYVT TXX</td>
<td>Life Skills Elective</td>
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<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
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**Professional/Technical (3 Credits)**

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<th>Course Title</th>
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<tbody>
<tr>
<td>HUMS 101</td>
<td>Introduction to Human Services</td>
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**Mental Health Concentration (21 Credits)**

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<tbody>
<tr>
<td>HUMS 205</td>
<td>Behavior Modification/Choice Theory</td>
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<td>PSYC 205</td>
<td>Abnormal Psychology</td>
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**Direct Support Professional Concentration (21 Credits)**

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<td>HUMS 102</td>
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</tr>
<tr>
<td>HUMS 103</td>
<td>Interviewing and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 116</td>
<td>Introduction to Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 123</td>
<td>Health and Wellness</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 126</td>
<td>Community Integration</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 127</td>
<td>Positive Personal Support</td>
<td>3</td>
</tr>
<tr>
<td>HUMS 128</td>
<td>Disability Support Teams</td>
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**Indiana Youth Development Professional Concentration (21 Credits)**

<table>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>HUMS 102</td>
<td>Helping Relationship Technique</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 205</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>IYDP 101</td>
<td>Child/Youth Development</td>
<td>3</td>
</tr>
<tr>
<td>IYDP 102</td>
<td>Families and Communities</td>
<td>3</td>
</tr>
<tr>
<td>IYDP 103</td>
<td>Health and Safe Environment</td>
<td>3</td>
</tr>
<tr>
<td>IYDP 104</td>
<td>Content &amp; Curriculum for the Youth Professional</td>
<td>3</td>
</tr>
<tr>
<td>IYDP 115</td>
<td>Development for the Youth Professional</td>
<td>3</td>
</tr>
</tbody>
</table>
Imaging Sciences

Program Description
The Imaging Science Program offers degrees for radiology and ultrasound. The radiologic technologist prepares and positions patients for exams and operates x-ray equipment. Sonographers use ultrasound for diagnostic procedures for obsteics, abdomen, and other Imaging Science graduates can work in hospitals, physicians' offices, clinics, and other health agencies, and certain educational institutions. The Associate of Science program includes courses in the following areas: technique, exposure, positioning, protection, physics, cross-section anatomy, patient care and ethics. Clinical practice and supplemental instruction are provided in accredited hospitals and clinics. Students graduating from the Imaging Sciences program participate in examinations of competency in general and technical education. Upon completion of program requirements, graduates are eligible to take the National Registry Examination. Graduates of the Imaging Sciences program may seek immediate employment or transfer and complete a baccalaureate degree in Imaging Sciences. Articulated transfer opportunities are available with IUPUI, IUK, and University of Southern Indiana. Students are encouraged to review these options with their advisors.

Sample Careers
Radiologic technologist, diagnostic medical sonographer, CAT scan, cardiac catheterization

Degrees Available
Associate of Science

Concentrations Offered
Diagnostic Medical Sonography General, Diagnostic Medical Sonography Vascular, Radiologic Technology

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 70-80 credits in the following areas:
General Education Core 19
Professional/Technical Core 18
Concentration Courses 33-43

General Education (19 Credits)
APHY 101 Anatomy and Physiology I 3
APHY 102 Anatomy and Physiology II 3
COMM 101 Fundamentals of Public Speaking or 3
COMM 102 Introduction to Interpersonal Communication
ENGL 111 English Composition 3
IVYT 1XX Life Skills Elective 1
MATH 136 College Algebra 3
PSYC 101 Introduction to Psychology or 3
SOCI 111 Introduction to Sociology

Professional/Technical (18 Credits)
CINS 101 Introduction to Microcomputers 3
HLHS 101 Medical Terminology 3
RADT 111 Orientation and Patient Care 4
RADT 117 Radiation Physics and Equipment Operation 3
RADT 221 Pharmacology and Advanced Procedures 3
RADT 250 Introduction to Cross Sectional Anatomy 2

Choose One of the Following Concentrations
Diagnostic Medical Sonography General Concentration (33 Credits)
DMSI 101 Ultrasound Physics I 3
DMSI 102 Abdominal Sonography I 3
DMSI 103 OB/Gyn Sonography I 3
DMSI 105 General Sonography Clinical I 3
DMSI 113 General Sonography Clinical II 3

Diagnostic Medical Sonography Vascular Concentration (33 Credits)
DMSI 101 Ultrasound Physics I 3
DMSI 110 Vascular Sonography I and Lab 4
DMSI 114 Vascular Sonography Clinical I 3
DMSI 116 Vascular Sonography Clinical II 3
DMSI 150 Vascular Sonography II and Lab 4
DMSI 201 Ultrasound Physics II 3
DMSI 210 Vascular Sonography III and Lab 4
DMSI 214 Vascular Sonography Clinical III 3
DMSI 216 Vascular Sonography Clinical IV 3
DMSI 295 Sonography Exam Review 3

Radiologic Technology Concentration (43 Credits)
RADT 112 Image Production and Evaluation I 3
RADT 113 Radiographic Positioning I and Lab 3
RADT 114 Radiographic Clinical Education I 3
RADT 115 Radiographic Positioning II and Lab 3
RADT 116 Radiographic Clinical Education II 4
RADT 201 Radiographic Positioning III and Lab 3
RADT 202 Radiographic Clinical Education III 4
RADT 203 Radiographic Clinical Education IV 4
RADT 204 Radiographic Clinical Education V 4
RADT 206 Radiobiology and Radiation Protection 3
RADT 209 Radiographic Positioning IV 3
RADT 218 Image Production and Evaluation II 3
RADT 299 General Exam Review 3
Industrial Technology

Program Description
The Industrial Technology program is designed to prepare you for the modern industrial environment. In today's modern factories, CNC machines and automated equipment fabricate industrial and consumer products. To operate in the modern manufacturing facility requires highly trained individuals.

Sample Careers
Industrial technologist, CNC technologist, machinist, quality manager

Degrees Available
Associate of Science, Associate of Applied Science, Technical Certificate

Certificates Offered
Fluid Power, Heating and Air Conditioning, Industrial Electrician, Machine Tool, Welding

Concentrations Offered
Heating, Ventilation and Air Conditioning, Machining, Maintenance, Power Plant Technology, Process Control and Automation, Welding

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Industrial Technology is available with Purdue University. To view this Associate of Science transfer degree program and to see if it is available at your local Ivy Tech campus, go to http://www.ivytech.edu.

Students are encouraged to review this option with their advisors, to consult the catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Opportunities for transfer may be available at your local campus. Students should contact their local transfer office.

Associate of Applied Science
To earn this degree, you must have 62-64 credits in the following areas:
- General Education Core 20-22
- Professional/Technical Core 18
- Concentration Courses 12
- Regionally Determined Credits 12-13

General Education (20-22 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 3
- MATH 1XX Math Elective 3
- PHYS 101 Physics I 4
- or SCIN 101 Science of Traditional and Alternative Energy 4
- * XXXX XXX Humanities/Social and Behavior Sciences / Mathematics/Life and Physical Sci. Elective 6-8

Professional/Technical (18 Credits)
- INDT 102 Introduction to Print Reading 3
- INDT 106 Introduction to the Workplace and Safety 3
- INDT 113 Basic Electricity 3
- INDT 114 Introductory Welding 3
- INDT 260 Problem Solving and Teamwork 3
- TECH 104 Computer Fundamentals 3

Choose One of the Following Concentrations

Electric Line Technology Concentration (24-25 Credits)
Learn how to repair and maintain electrical transmission systems. Common jobs include lineworker, line installer and line technician.

---

ENRG 102 Climbing 3
ENRG 103 Electrical Essentials for Power Line Workers 3
ENRG 107 Transmission and Distribution of Electric Power 3
ENRG 109 Rigging for Line Workers 3
Regionally Determined Credits 12-13

Heating, Ventilation and Air Conditioning Concentration (24-25 Credits)
This concentration will prepare you to install and repair heating, air conditioning, refrigeration and ventilation systems.
- HVAC 101 Heating Fundamentals 3
- HVAC 103 Refrigeration I 3
- HVAC 208 Heating Service 3
- HVAC 211 Refrigeration II 3
- Regionally Determined Credits 12-13

Machining Concentration (24-25 Credits)
Today's industries rely on trained and skilled machinists, machine operators and manufacturers to produce precision components for everything from household appliances to aircraft parts. With training that includes CNC operation and programming, as well as robotics and CAD systems, you'll be ready for a machine tool-related career.
- MTTC 101 Introduction to Machining 3
- MTTC 105 Abrasive Processes I 3
- MTTC 110 Turning and Milling Processes 3
- MTTC 208 CNC Programming I 3
- Regionally Determined Credits 12-13

Maintenance Concentration (24-25 Credits)
This concentration will provide you with a broad range of skills applicable to a variety of jobs in the industrial environment. You will be prepared to install, repair, maintain and troubleshoot industrial machinery and equipment such as pumps, motors, pneumatic and hydraulic systems, and production machinery.
- INDT 103 Motor and Motor Controls 3
- INDT 104 Fluid Power Basics 3
- INDT 203 Machine Maintenance and Installation 3
- INDT 205 Programmable Controllers I 3
- Regionally Determined Credits 12-13

Natural Gas Technology Concentration (24-25 Credits)
Learn how natural gas lines are constructed and maintained. Graduates will install new projects and maintain the pipelines.
Technical Certificate
To earn this degree, you must have 31-33 credits in the following areas:

**General Education** (7 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- IVY 1XX Life Skills Elective 1
- MATH 1XX Mathematics Elective 3 - 4

**Professional/Technical** (3 Credits)
- IND 102 Introduction to Print Reading 3

**Choose One of the Following Concentrations**

**Electric Line Technology Concentration** (21-22 Credits)
- ENRG 102 Climbing 3
- ENRG 103 Electrical Essentials for Power Line Workers 3
- Regionally Determined Credits 15-16

**Heating, Ventilation and Air Conditioning Concentration** (21-22 Credits)
- HVAC 101 Heating Fundamentals 3
- HVAC 103 Refrigeration I 3
- Regionally Determined Credits 15-16

**Machining Concentration** (21-22 Credits)
- MTTC 101 Introduction to Machining 3
- MTTC 110 Turning and Milling Processes 3
- Regionally Determined Credits 15-16

**Maintenance Concentration** (21-22 Credits)
- IND 104 Fluid Power Basics 3
- IND 113 Basic Electricity 3
- Regionally Determined Credits 15-16

**Natural Gas Technology Concentration** (21-22 Credits)
- HVAC 101 Heating Fundamentals 3
- NGAS 101 Fundamentals of Natural Gas 3
- Regionally Determined Credits 15-16

**Power Plant Technology Concentration** (21-22 Credits)
- IND 113 Basic Electricity 3
- PPTC 101 Power Plant Fundamentals 3
- Regionally Determined Credits 15-16

**Welding Concentration** (21-22 Credits)
- WELD 108 Shielded Metal Arc Welding I 3
- WELD 207 Gas Metal Arc (MIG) Welding 3
- Regionally Determined Credits 15-16

**Certificates**

**Fluid Power** (18 Credits)
- IMTC 201 Fluid Power Systems (Hydraulics/Pneumatics) 3
- IND 102 Introduction to Print Reading 3
- IND 103 Motors and Motor Controls 3
- IND 104 Fluid Power Basics 3
- IND 106 Introduction to the Workplace and Safety 3
- IND 113 Basic Electricity 3

**Heating and Air Conditioning** (18 Credits)
- HVAC 101 Heating Fundamentals 3
- HVAC 103 Refrigeration I 3
- HVAC 205 Heat Pump Systems 3
- HVAC 208 Heating Service 3
- HVAC 211 Refrigeration II 3
- IND 113 Basic Electricity 3
Information Security

Program Description
The Associate of Applied Science in Information Security will prepare you to work in areas related to information assurance and computer security. The certificates are designed for students currently working in the computer industry to enhance their knowledge of information and network-related risks and their avoidance and resolution. Major employers include computer and data processing companies, wholesale and retail trade companies, universities and colleges, and federal, state, and local government agencies.

Sample Careers
Computer Security or Information Assurance technicians

Degrees Available
Associate of Applied Science

Concentrations Offered
Network Security, Data Security

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 65 credits in the following areas:

General Education (19 Credits)

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<td>COMM 101</td>
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<td>ENGL 111</td>
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<td>MATH 135</td>
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<td>NATH 136</td>
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<td>MATH 200</td>
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<td>SCIN 1XX</td>
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Professional/Technical (34 Credits)

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<td>INSE 101</td>
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<td>INSE 250</td>
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Choose One of the Following Concentrations

Network Security Concentration (12 Credits)

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Industrial Technology continued

Industrial Electrician (18 Credits)

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<td>IMTC 122</td>
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<td>INDT 204</td>
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<td>INDT 103</td>
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<td>INDT 113</td>
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<tr>
<td>TECH 104</td>
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</table>

Machine Tool (18 Credits)

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<tbody>
<tr>
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<td>INDT 106</td>
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<td>MTTC 110</td>
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<td>MTTC 208</td>
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Welding (18 Credits)

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<td>WELD 108</td>
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<td>WELD 208</td>
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<tr>
<td>WELD 209</td>
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</tbody>
</table>

Contact your local campus for more information.
**Interior Design**

**Program Description**
The Interior Design Program provides career education in the creation of safe, functional, sustainable, productive and aesthetically pleasing interior and exterior environments for work, home, health and recreation. Students investigate many topics ranging from the interaction between human beings and their environments, to design conception and problem-solving, to materials specifying, project management and environmental impact. Student activities culminate in the development of an exit portfolio and resume demonstrating the skills and knowledge for a professional position in one of many concentration areas.

**Sample Careers**
Interior designer, landscape designer, retail designer

**Degrees Available**
Associate of Science, Associate of Applied Science

**Concentrations Offered**
Decorative Arts and Design, Garden Design, Interior Design

**Availability of concentrations and degrees varies by campus. Contact your local campus for more information.**

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**Associate of Science**
Articulated transfer through an Associate of Science in Interior Design is available with Indiana University-Purdue University Indianapolis. To view the Associate of Science transfer degree program and to see if it is available at your local Ivy Tech campus, students should go to [http://www.ivytech.edu](http://www.ivytech.edu).

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office at their local Ivy Tech for more information.

**Associate of Applied Science**
To earn this degree, you must have 67 credits in the following areas:

- General Education Core 19
- Professional/Technical Core 24
- Concentration Courses 12
- Regionally Determined Credits 12

**General Education** (19 Credits)
- ARTH 101 Survey of Art and Culture I 3
- ARTH 102 Survey of Art and Culture II 3
- **COMM 101** Fundamentals of Public Speaking 3
- **COMM 102** Introduction to Interpersonal Communication 3
- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 1
- **MATH 1XX** Mathematics Elective 3
- **XXXX XXXX** Life/Physical Science Elective 3

**Professional/Technical** (24 Credits)
- INTD 101 Design Theory 3
- INTD 102 Drafting and Construction 3
- INTD 103 Introduction to Interior Design 3
- INTD 105 Design Presentations 3
- INTD 201 Interior Materials 3
- INTD 203 Professional Practices 3
- INTD 209 Portfolio Preparation/Internship 3
- INTD 216 CAD for Environmental Designers 3

---

**Certificates**

**Data Security** (24 Credits)
- CINS 121 C/C++/C# Programming 3
- CINT 201 Advanced Operating Systems: LINUX 3
- CINT 225 Windows Network Operating Systems 3
- CINT 251 Introduction to Systems Security 3
- CINT 253 Microsoft Network Security 3
- INSE 101 Introduction to Information Systems Security 3
- INSE 210 Secure Coding Theory and Application 3
- INSE 211 Cryptography 3

**Network Security** (27 Credits)
- CINT 201 Advanced Operating Systems: LINUX 3
- CINT 225 Windows Network Operating Systems 3
- CINT 251 Introduction to Systems Security 3
- CINT 253 Microsoft Network Security 3
- CINT 254 Linux Network Security 3
- INSE 101 Introduction to Information Systems Security 3
- INSE 201 Risk Management/Cyber Terrorism 3
- INSE 202 Advanced Routers/Firewalls 3
Choose One of the Following Concentrations

Decorative Arts and Design Concentration (24 Credits)
Do you know the difference between faux finish and Venetian plaster? If you're interested in decorative arts, this concentration will prepare you with classes ranging from three-dimensional design to visual merchandising.

- ARTS 100 Life and Object Drawing I 3
- ARTS 103 Three-Dimensional Design 3
- INTD 110 History of Interiors & Furniture 3
- INTD 217 Visual Merchandising 3
- Regionally Determined Credits 12

Garden Design Concentration (24 Credits)
Are your thumbs green? As a garden designer, you'll be able to put them to use. This concentration offers studies on designing and maintaining harmonious natural ecosystems for enjoyment and use.

- GRDN 110 Fundamentals of Gardening 3
- GRDN 114 Garden Design I 3
- GRDN 115 History of Garden Design 3
- GRDN 116 Theme Gardening 3
- Regionally Determined Credits 12

Interior Design Concentration (24 Credits)
As an interior designer, you're responsible for the decoration, design and functionality of your client's space. This concentration prepares you for careers in the creation of safe, functional and aesthetically pleasing interior and exterior environments for work, home, health and recreation.

- INTD 103 Introduction to Interior Design 3
- INTD 104 Textiles for Interiors 3
- INTD 108 Interior Design II 3
- INTD 110 History of Interiors & Furniture 3
- INTD 200 Lighting and Building Systems 3
- Regionally Determined Credits 9

Kitchen and Bath Design Concentration (24 Credits)
This concentration provides training in the principles of efficient, functional and beautiful kitchen and bath design. Students will study the basics of home space planning and furniture arrangement, safety and barrier-free guidelines, project management and the specific components of successful kitchen and bath arrangements, fixtures, and finishes. Graduates will develop an exit portfolio and resume that demonstrates the skills and knowledge for a career in kitchen and bathroom design, interior design, decoration sales and consultancy, and exhibition/room dressing and the Building and Custom Home Industry.

- INTD 108 Interior Design II 3
- INTD 200 Lighting and Building Systems 3
- INTD 211 Kitchen and Bath 3
- INTD 212 Kitchen and Bath Systems and Management 3
- Regionally Determined Credits 12
Kinesiology

Program Description
With an Associate of Science degree in Kinesiology, you will acquire an understanding of motion, particularly of the human body. The purpose of this degree program is to prepare you to work in entry-level positions in fitness leadership, sports management, wellness promotion, and corporate wellness.

Articulated transfer opportunities are available with Indiana University Bloomington with specializations in Sports Marketing/Management, Fitness and Exercise Science. Students can transfer from the Ivy Tech Community College Bloomington campus to the Department of Kinesiology in the School of Health, Physical Education and Recreation at the Indiana University Bloomington campus.

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 61 credits in the following areas:
- General Education Core 46
- Professional/Technical Core 15

General Education (46 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- COMM 102 Introduction to Interpersonal Communication 3
- ECON 201 Principles of Macroeconomics 3
- ECON 202 Principles of Microeconomics 3
- ENGL 111 English Composition 3
- ENGL 202 Creative Writing 3
- ENGL 211 Technical Writing 3
- IVYT 1XX Life Skills Elective 1
- MATH 135 Finite Math 3
- PSYC 101 Introduction to Psychology 3
- SOCI 111 Introduction to Sociology 3
- SOCI 252 Social Problems 3
- SOCI 261 Sociology of Relationships and the Family 3
- XXXX XXX Humanities/Social & Behavioral Sci. Elective 3
- XXXX XXX Life & Physical Sciences/Mathematics Electives 6

Professional/Technical (15 Credits)
- BUSN 101 Introduction to Business 3
- BUSN 102 Business Law 3
- CINS 101 Introduction to Microcomputers 3
- HPER 211 Introduction to Sport Management 3
- HPER 212 Introduction to Exercise Science 3

Liberal Arts

Program Description
The Associate of Arts and Associate of Science in Liberal Arts are transfer programs that provide you with an opportunity to complete the first two years of study leading to a bachelor's degree in liberal arts areas.

Articulation agreements have been established with all the public, four-year universities in Indiana so that if you complete your associate degree, you may fulfill the requirements for a related bachelor's degree in an additional two years of full-time study at the university.

Sample Careers
Transfer degree

Degrees Available
Associate of Arts, Associate of Science

Concentrations Offered
English and Communication, Foreign Language, Humanities
Life and Physical Sciences, Mathematics
Social and Behavioral Sciences

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.
Library Technical Assistant via Distance Education

Program Description
The Library Technical Assistant program will give you an understanding of the history of libraries and the functions and roles of the different types of libraries. You will have an understanding of and be functionally proficient in: basic library technical services including ordering, processing, and copy-cataloging of the variety of types and forms of materials found in libraries; library public support services including circulation, interlibrary loan, and basic reference, and computer operations as they relate to library functions.

As a library technical assistant, you might work under the supervision of librarians in circulation, technical processing, reference and audio-visual services. You also might assist librarians in the preparation and organization of materials and help patrons use the library.

Sample Careers
Staff positions in public, academic, school and special libraries

Degrees Available
Associate of Science (via Distance Education)

Concentrations Offered
Children's Services, Library Technology

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 61 credits in the following areas:

<table>
<thead>
<tr>
<th>Category</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core</td>
<td>25</td>
</tr>
<tr>
<td>Professional/Technical Core</td>
<td>24</td>
</tr>
<tr>
<td>Concentration Courses</td>
<td>12</td>
</tr>
</tbody>
</table>

General Education (25 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 102</td>
<td>Introduction to Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1XX</td>
<td>Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>SOCI 111</td>
<td>Principles of Sociology</td>
<td>3</td>
</tr>
<tr>
<td>XXXX XXX</td>
<td>Humanities Elective</td>
<td>6</td>
</tr>
<tr>
<td>XXXX XXX</td>
<td>Life/Physical Science Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical (24 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>Introduction to Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 101</td>
<td>Introduction to Libraries and Library Services</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 102</td>
<td>Introduction to Reference Sources and Services</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 103</td>
<td>Introduction to Libraries Public Services</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 104</td>
<td>Introduction to Technical Services</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 201</td>
<td>Cataloging and Classification</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 202</td>
<td>Electronic Resources and Online Searching</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 206</td>
<td>Library Assistant Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose One of the Following Concentrations

Children's Services Concentration (12 Credits)
This concentration will prepare you to work under the supervision of a children's librarian or in the children's section of a library.

Choose four of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 103</td>
<td>Curriculum in Early Childhood Classroom</td>
<td>3</td>
</tr>
<tr>
<td>ECED 120</td>
<td>Child Growth and Development</td>
<td>3</td>
</tr>
<tr>
<td>ECED 130</td>
<td>Developmentally Appropriate Guidance in Cultural Context</td>
<td>3</td>
</tr>
<tr>
<td>ECED 223</td>
<td>School Age Programming</td>
<td>3</td>
</tr>
<tr>
<td>ECED 233</td>
<td>Emerging Literacy</td>
<td>3</td>
</tr>
</tbody>
</table>

Library Technician Concentration (12 Credits)
The ever changing world of technology affects libraries just as much as it does other businesses and facilities. This concentration equips you with knowledge to support a library through such areas as websites and information systems.

Choose four of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 102</td>
<td>Information Systems Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>CINS 157</td>
<td>Web Site Development</td>
<td>3</td>
</tr>
<tr>
<td>LIBR 207</td>
<td>Management &amp; Supervision in Public Libraries</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 103</td>
<td>Introduction to Computers with Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 110</td>
<td>Presentation Graphics</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 114</td>
<td>Desktop Publishing</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 207</td>
<td>Integrated Applications</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 214</td>
<td>Multimedia Design</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 218</td>
<td>Spreadsheets</td>
<td>3</td>
</tr>
<tr>
<td>XXXX XXX</td>
<td>Any LTA Library Technician Concentration Course</td>
<td>3</td>
</tr>
</tbody>
</table>

IVY TECH COMMUNITY COLLEGE
Machine Tool Technology

Program Description
Virtually all manufactured products depend on America's precision machining industry at some point during their production. The Machine Tool Technology program was developed from employer input—employers who know the demand for solid training in this specialized field of metal cutting operations for the creation of machined parts, specialized tooling molds, dies and prototypes.

Sample Careers
Machinists, First line supervisors/managers of production and operating workers, tool and die makers

Degrees Available
Associate of Applied Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 65 credits in the following areas:
General Education Core 20
Professional/Technical Core 45

General Education (20 Credits)
COMM 101 Fundamentals of Public Speaking 3
ENGL 111 English Composition 3
IVYT 1XX Life Skills Elective 1
MATH 121 Geometry/Trigonometry 3
PHYS 101 Physics I 4
XXXX XXX Humanities/Social Sci./Mathematics Elective 6

Professional/Technical (45 Credits)
ADMF 115 Materials and Processes for Manufacturing 3
DESN 103 CAD Fundamentals 3
DESN 227 Geometric Dimensions and Tolerancing 3
INDT 102 Introduction to Print Reading 3
MTTC 102 Turning Processes I 3
MTTC 103 Milling Processes I 3
MTTC 204 Abrasive Processes I 3
MTTC 208 CNC Programming I 3
MTTC 209 CNC Programming II 3
MTTC 220 CAD/CAM I 3
MTTC 240 Machine Operations I 3
MTTC 241 Machine Operations II 3
MTTC 242 CNC Machining 3
TECH 102 Technical Graphics 3
TECH 104 Computer Fundamentals for Technology 3
Manufacturing, Production and Operations via Distance

Program Description
The Manufacturing, Production and Operations program prepares students to become skilled production operators who can function as fully proficient manufacturing system employees in manufacturing environments. Manufacturing companies require skilled machine operators that can use gauging, inspection, and operations techniques to produce high quality products. Students will be trained to understand the needs, processes, and activities used in today's manufacturing environment.

Sample Careers
Machine operator, parts inspector, assembler, work cell operator, parts layout, and machine setters

Degrees Available
Associate of Applied Science (via Distance Education), Technical Certificate (via Distance Education)

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 61-64 credits in the following areas:

- General Education Core: 19-22 credits
- Professional/Technical Core: 42 credits

General Education (19-22 Credits)
- COMM 101 Fundamentals of Public Speaking
- or
- COMM 102 Introduction to Interpersonal Communication
- ENGL 111 English Composition
- IVYT 1XX Life Skills Elective
- MATH 1XX Mathematics Elective
- SCIN 1XX Science Elective
- XXXX XXXX Humanities or Social/Behavioral Sci. Elective

Professional/Technical (42 Credits)
- MPRO 100 Introduction to Plant Floor & CNC Principles
- MPRO 101 Shop Mathematics
- MPRO 102 Introduction to Print Reading
- MPRO 103 Manufacturing Automation
- MPRO 106 Introduction to Workplace and Safety
- MPRO 107 CNC Operations
- MPRO 108 Metrology
- MPRO 109 Quality Control Concepts and Techniques I

Technical Certificate
To earn this degree, you must have 31-32 credits in the following areas:

- General Education Core: 7-8 credits
- Professional/Technical Core: 24 credits

General Education (7-8 Credits)
- ENGL 111 English Composition
- IVYT 1XX Life Skills Elective
- XXXX XXXX Humanities or Social/Behavioral Sci. Elective

Professional/Technical (24 Credits)
- MPRO 100 Introduction to Plant Floor & CNC Principles
- MPRO 101 Shop Mathematics
- MPRO 102 Introduction to Print Reading
- MPRO 103 Manufacturing Automation
- MPRO 106 Introduction to Workplace and Safety
- MPRO 107 CNC Operations
- MPRO 108 Metrology
- MPRO 109 Quality Control Concepts and Techniques I

Elective is defined as a course chosen by the student from the inventory of courses available.

Capstone Course
Mechanical Engineering Technology

Program Description
The Mechanical Engineering Technology program will educate skilled technicians who will work with engineers and other technicians to implement mechanical designs and to support engineering processes such as collecting, analyzing and interpreting data and troubleshooting mechanical systems. You will develop basic mechanical design skills and the appropriate science and math knowledge to enter the workforce and/or transfer to a four-year engineering technology program. Graduates can continue their education at IUPUI.

Sample Careers
Manufacturing, Transportation, Computer and electronics, Transfer degree

Degrees Available
Associate of Science

Concentrations Offered
None
Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
Articulated transfer through an Associate of Science in Mechanical Engineering Technology is available with IUPUI and PUWL. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

### Associate of Science

To earn this degree, you must have 64 credits in the following areas:

- General Education Core 30
- Professional/Technical Core 34

#### General Education (30 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 111</td>
<td>Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 211</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 136</td>
<td>College Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 137</td>
<td>Trigonometry with Analytic Geometry</td>
<td>3</td>
</tr>
<tr>
<td>MATH 221</td>
<td>Calculus for Technology I</td>
<td>3</td>
</tr>
<tr>
<td>PHYS 101</td>
<td>Physics I</td>
<td>4</td>
</tr>
<tr>
<td>XXXX XXXX</td>
<td>Humanities/Social and Behavioral Science Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Professional/Technical (34 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSN 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>DESN 102</td>
<td>Technical Graphics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 103</td>
<td>CAD Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>DESN 104</td>
<td>Mechanical Graphics</td>
<td>3</td>
</tr>
<tr>
<td>DESN 221</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td>EECT 111</td>
<td>Introduction to Circuit Analysis</td>
<td>4</td>
</tr>
<tr>
<td>INDT 104</td>
<td>Fluid Power Basics</td>
<td>3</td>
</tr>
<tr>
<td>METC 105</td>
<td>Introduction to Engineering Technology</td>
<td>3</td>
</tr>
<tr>
<td>METC 220</td>
<td>CAD/CAM for Mechanical Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose two from this list of courses:

- DESN 214 Kinematics of Machinery 3
- DESN 217 Design Process and Applications 3
- INDT 205 Programmable Controllers I 3
- MTTC 208 CNC Programming I 3
Medical Assisting

Program Description
Medical assistants are multi-skilled health professionals specifically educated to work in ambulatory settings performing administrative and clinical duties. The practice of medical assisting directly influences the public's health and well-being, and requires mastery of a complex body of knowledge and specialized skills requiring both formal education and practical experience that serve as standards for entry into the profession.

Sample Careers
Certified Medical Assistant (CMA), medical assistant, insurance specialist, medical transcriptionist

Degrees Available
Associate of Applied Science, Technical Certificate

Concentrations Offered
Administrative, Clinical, Generalist, Outpatient Insurance Coding, Medical Assistant, Transcription

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

The Ivy Tech Community College Medical Assisting Program is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP), on recommendation of the Curriculum Review Board of the American Association of Medical Assistants Endowment (CRB-AAMAE).

Commission on Accreditation of Allied Health Education Programs
1361 Park Street
Clearwater, FL 33756
(727) 210-2350

Only graduates of the AAS and GENERALIST-TC are eligible to take the national exam to become a Certified Medical Assistant (CMA). The American Association of Medical Assistants Certifying Board (AAMA CB) awards the CMA credential after successful completion of the exam. The Commission on Accreditation of Allied Health Education Programs (CAAHEP), in collaboration with the Curriculum Review Board (CRB) of the AAMA Endowment (a committee on accreditation of CAAHEP), accredits medical assisting programs.

Associate of Applied Science
To earn this degree, you must have 61 credits in the following areas:

- General Education Core 19
- Professional/Technical Core 36
- Regionally Determined Credits 6

General Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>APHY 101</td>
<td>Anatomy and Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>APHY 102</td>
<td>Anatomy and Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>COMM 102</td>
<td>Introduction Interpersonal Communication</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>* MATH 1XX</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXXX</td>
<td>Humanities/Social Sciences Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLHS 101</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 107</td>
<td>Administrative I</td>
<td>3</td>
</tr>
</tbody>
</table>

Technical Certificate
To earn this degree, you must have 31-46 credits in the following areas:

- General Education Core 7
- Professional/Technical Core 3
- Concentration Courses 6-36
- Regionally Determined Credits 0-15

General Education (19 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>APHY 101</td>
<td>Anatomy and Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>APHY 102</td>
<td>Anatomy and Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>COMM 102</td>
<td>Introduction Interpersonal Communication</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>* MATH 1XX</td>
<td>Math Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXXX</td>
<td>Humanities/Social Sciences Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical (42 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLHS 101</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 107</td>
<td>Administrative I</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 108</td>
<td>Administrative II</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 207</td>
<td>Medical Insurance and Basic Coding with Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 218</td>
<td>Pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 219</td>
<td>Medical Assisting Laboratory Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 238</td>
<td>Clinical I</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 239</td>
<td>Clinical II</td>
<td>3</td>
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<tr>
<td>MEAS 242</td>
<td>Disease Conditions</td>
<td>3</td>
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<tr>
<td>MEAS 258</td>
<td>Medical Assisting Clinical Externship</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 259</td>
<td>Medical Assisting Administrative Externship</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose One of the Following Concentrations

Administrative Concentration (21 Credits)
This concentration includes classes that cover a range of administrative-centered duties within the medical assisting field.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAS 107</td>
<td>Administrative I</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 108</td>
<td>Administrative II</td>
<td>3</td>
</tr>
</tbody>
</table>
| Regionally Determined Credits 15

Clinical Concentration (21 Credits)
This concentration includes classes that cover a range of clinic-centered responsibilities within the medical assisting field.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MEAS 238</td>
<td>Clinical I</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>MEAS 239</td>
<td>Clinical II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Regionally Determined Credits</td>
<td>15</td>
</tr>
</tbody>
</table>

**Generalist Concentration** (36 Credits)
The Generalist Concentration is the one concentration that will allow you to sit for certification.

- **APHY 101 Anatomy and Physiology I** 3
- **APHY 102 Anatomy and Physiology II** 3
- MEAS 107 Administrative I 3
- MEAS 108 Administrative II 3
- MEAS 137 Medical Insurance and Basic Coding with Computer Applications 3
- MEAS 202 Integrated Medical Office Systems 3
- MEAS 218 Pharmacology 3
- MEAS 219 Medical Assisting Laboratory Techniques 3
- MEAS 238 Clinical I 3
- MEAS 239 Clinical II 3
- MEAS 258 Medical Assisting Clinical Externship 3
- MEAS 259 Medical Assisting Administrative Externship 3

**Outpatient Insurance Coding Concentration** (21 Credits)
Correctly coding and billing insurance claims is a vital piece of the medical profession and is a job which demands specialized training. This concentration starts with basic insurance claims and coding, and progresses to advanced duties which include hospital billing, coding and claims.

- MEAS 137 Medical Insurance and Basic Coding with Computer Applications 3
- MEAS 213 Advanced Insurance Coding 3
- MEAS 220 Advanced Insurance Claims Processing 3
- Regionally Determined Credits 12

**Transcription Concentration** (21 Credits)
This concentration prepares you to work in the field of medical transcription with focus on word processing software and medical dictation. You will learn proofreading techniques and improve speed and accuracy in production of medical documents.

- MEAS 135 Medical Word Processing and Transcription 3
- MEAS 235 Advanced Transcription 3
- Regionally Determined Credits 15
Medical Laboratory Technology

Program Description
As research continues to change the face of modern medicine, more sophisticated tests allow for more accurate and rapid diagnosis. Medical Laboratory Technology (MLT) has become a technologically complex field requiring specific knowledge and skills. The MLT program at Ivy Tech will train you to proficiently perform the duties required in a clinical laboratory. This two-year Associate in Applied Science Degree Program will prepare you theoretically and technically for the procedures you will be performing.

Sample Careers
Medical Laboratory Technician, Clinical Laboratory Technician

Degrees Available
Associate of Applied Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 69-71 credits in the following areas:

<table>
<thead>
<tr>
<th>General Education Core</th>
<th>19-20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/Technical Core</td>
<td>50-51</td>
</tr>
</tbody>
</table>

General Education (19-20 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>APHY 101</td>
<td>Anatomy and Physiology I</td>
<td>3</td>
</tr>
<tr>
<td>APHY 102</td>
<td>Anatomy and Physiology II</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>BIOL 201</td>
<td></td>
</tr>
<tr>
<td>**</td>
<td>General Microbiology</td>
<td>4</td>
</tr>
<tr>
<td>**</td>
<td>COMM 101</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>COMM 102</td>
<td></td>
</tr>
<tr>
<td>**</td>
<td>Fundamentals of Public Speaking</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>Introduction to Interpersonal Communication</td>
<td></td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVY 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1XX</td>
<td>Mathematics Elective</td>
<td></td>
</tr>
<tr>
<td>**</td>
<td>Psychology</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>Sociology</td>
<td></td>
</tr>
<tr>
<td>**</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical (50-51 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>**</td>
<td>Chemistry I</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td>Chemistry Techniques</td>
<td></td>
</tr>
<tr>
<td>HLHS 105</td>
<td>Medical Law and Ethics</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 101</td>
<td>Fundamentals of Laboratory Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 102</td>
<td>Routine Analysis Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 201</td>
<td>Immunology Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 202</td>
<td>Immunohematology Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 205</td>
<td>Hematology Techniques I</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 206</td>
<td>Hematology Techniques II</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 207</td>
<td>Chemistry Techniques I</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 209</td>
<td>Routine Analysis Applications</td>
<td>1</td>
</tr>
<tr>
<td>MEDL 210</td>
<td>Hematology Applications</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 212</td>
<td>Immunology Applications</td>
<td>1</td>
</tr>
<tr>
<td>MEDL 213</td>
<td>Immunohematology Applications</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 215</td>
<td>Parasitology and Mycology</td>
<td>1</td>
</tr>
<tr>
<td>MEDL 218</td>
<td>Clinical Pathology</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 221</td>
<td>Microbiology Applications</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 222</td>
<td>Microbiology Techniques</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 224</td>
<td>Chemistry Applications</td>
<td>3</td>
</tr>
<tr>
<td>MEDL 227</td>
<td>Chemistry Techniques II</td>
<td>2</td>
</tr>
</tbody>
</table>
### Mortuary Science

**Program Description**

**Program Aim:**

The central aim of the Mortuary Science program recognizes the importance of funeral service education personnel as:

1. Members of a human service profession.
2. Members of the community in which they serve.
3. Participants in the relationship between bereaved families and those engaged in the funeral service profession.
4. Professionals knowledgeable of and compliant with federal, state, provincial/territorial, and local regulatory guidelines (in the geographic area where they practice), as well as
5. Professionals sensitive to the responsibility for public health, safety and welfare in caring for human remains.

**Program Objectives:**

1. To enlarge the background and knowledge of students about the funeral service profession;
2. To educate students in every phase of funeral service, and to help enable them to develop the proficiency and skills necessary for the profession, as defined by the Preamble above.
3. To educate students concerning the responsibilities of the funeral service profession to the community at large.
4. To emphasize high standards of ethical conduct.
5. To provide a curriculum at the postsecondary level of instruction.
6. To encourage student and faculty research in the field of funeral service

The annual passage rate of first-time takers on the National Board Examination (NBE) for the most recent three-year period for this institution and all ABFSE accredited funeral service education programs is posted on the ABFSE website (www.abfse.org).

All mortuary science students must take the National Board Examination (NBE) as a graduation requirement.


**Sample Careers**

Embalmer, funeral director

**Degrees Available**

Associate of Applied Science

---

### Concentrations Offered

None

**Availability of concentrations and degrees varies by campus. Contact your local campus for more information.**

### Associate of Applied Science

To earn this degree, you must have 67 credits in the following areas:

- **General Education Core**: 22 credits
- **Professional/Technical Core**: 45 credits

#### General Education (19 Credits)

- **# APHY 101** Anatomy and Physiology I 3
- **# APHY 102** Anatomy and Physiology II 3
- **# BIOL 211** General Microbiology 3
- **# COMM 102** Introduction to Interpersonal Communication 3
- **# ENGL 111** English Composition 3
- **# IVY 1XX** Life Skills Elective 1
- **# MATH 136** College Algebra 3
- **# SOCI 111** Introduction to Sociology 3

#### Professional/Technical (45 Credits)

- **# ACCT 101** Financial Accounting 3
- **# BUSN 101** Introduction to Business 3
- **# CINS 101** Introduction to Microcomputers 3
- **# MORT 100** Orientation to Funeral Service 3
- **# MORT 101** Grief Psychology for Funeral Service 3
- **# MORT 102** Mortuary Law 3
- **# MORT 103** Embalming Chemistry 3
- **# MORT 105** Embalming Theory I 3
- **# MORT 205** Embalming Theory II 3
- **# MORT 207** Embalming Practicum I 3
- **# MORT 208** Pathology for Funeral Service 3
- **# MORT 209** Restorative Art 3
- **# MORT 212** Funeral Service Management 3
- **# MORT 217** Embalming Practicum II 3
- **# MORT 220** National Board Exam Review 3

# Courses must be successfully completed before admittance to the program.

---

### Nursing

**Program Description**

The Associate of Science in Nursing Program is designed to accommodate two groups of students: those who are entering a nursing program for the first time and those licensed practical nurses or certified paramedics seeking educational mobility to the associate-degree level. As a graduate of the ASN program, you will be eligible to take the NCLEX-RN examination to become registered nurses. You may seek immediate employment as nurses or choose to transfer their credits to a four-year institution offering a baccalaureate degree.

**Sample Careers**

Registered Nurse

**Degrees Available**

Associate of Science

**Concentrations Offered**

None

**Availability of concentrations and degrees varies by campus. Contact your local campus for more information.**
Nursing continued

Articulated transfer opportunities are available with Ball State University, the IU School of Nursing, Indiana State University, and the University of Southern Indiana. Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

**Associate of Science**

To earn this degree, you must have 45-71 credits in the following areas:

| General Education Core       | 31-33 |
|                             |       |
| Professional/Technical Core  | 14-38 |

**General Education (31-33 Credits)**

- # APHY 101 Anatomy and Physiology I 3
- # APHY 102 Anatomy and Physiology II 3
- # ENGL 111 English Composition 3
- # NVTY 1XX Life Skills Elective 1
- # PSYC 101 Introduction to Psychology 3
- MATH 117 The Art of Geometry 3
- MATH 118 Concepts in Mathematics 3
- PSYC 201 Lifespan Development 3
- or PSYC 205 Abnormal Psychology 3
- or SOCI 111 Introduction to Sociology 3
- or SOCI 164 Introduction to Multicultural Studies 3
- COMM 101 Fundamentals of Public Speaking 3
- or COMM 102 Introduction to Interpersonal Communication 3
- ENGL 112 Exposition and Persuasion 3
- or ENGL 211 Technical Writing 3

Choose two of the following:

- APHY 201 Advanced Human Physiology 4
- BIDL 201 General Microbiology 4
- **<>** BIDL 211 General Microbiology I 3

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; CHEM 101 Introductory Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 111 Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>PHYS 101 Physics I</td>
<td>4</td>
</tr>
</tbody>
</table>

**Professional/Technical Traditional (38 credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 100 Fundamentals of Nursing</td>
<td>3</td>
</tr>
<tr>
<td>X NRSG 101 Fundamentals of Nursing Lab</td>
<td>1</td>
</tr>
<tr>
<td>NRSG 102 Medical-Surgical Nursing I</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 103 Medical-Surgical Nursing Lab</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 105 Medical-Surgical Nursing I Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 106 Pharmacology for Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 110 Medical Surgical Nursing II</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 111 Medical Surgical Nursing II Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 112 Maternal-Child Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 113 Maternal-Child Nursing Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 114 Health Care Concepts in Nursing</td>
<td>1</td>
</tr>
<tr>
<td><strong>^</strong> NRSG 200 Complex Medical-Surgical Nursing for the ASN</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 201 Complex Medical-Surgical Nursing for the ASN Clinical</td>
<td>4</td>
</tr>
<tr>
<td>NRSG 202 Nursing Care of the Complex Family</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 203 Nursing Care of the Complex Family Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 204 Psychiatric Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 205 Psychiatric Nursing Clinical</td>
<td>1</td>
</tr>
</tbody>
</table>

**Professional/Technical LPN Transition to Nursing (New Curriculum) (14 Credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>^</strong> NRSG 200 Complex Medical-Surgical Nursing for the ASN</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 201 Complex Medical Surgical Nursing for the ASN Clinical</td>
<td>4</td>
</tr>
<tr>
<td>NRSG 202 Nursing Care of the Complex Family</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 203 Nursing Care of the Complex Family Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 204 Psychiatric Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 205 Psychiatric Nursing Clinical</td>
<td>1</td>
</tr>
</tbody>
</table>

**Professional/Technical LPN Transition to Nursing (Old Curriculum) (22 Credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 106 Pharmacology for Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 120 Transition to ASN for the LPN</td>
<td>5</td>
</tr>
<tr>
<td><strong>^</strong> NRSG 200 Complex Medical-Surgical Nursing for the ASN</td>
<td>3</td>
</tr>
</tbody>
</table>

**NRSG 201** Complex Medical Surgical Nursing for the ASN Clinical

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 202 Nursing Care of the Complex Family</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 203 Nursing Care of the Complex Family Clinical</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 204 Psychiatric Nursing</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 205 Psychiatric Nursing Clinical</td>
<td>1</td>
</tr>
</tbody>
</table>

**Professional/Technical Paramedic Transition to Nursing (30 Credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>NRSG 106 Pharmacology for Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 108 Transition for the Paramedic to the ASN</td>
<td>5</td>
</tr>
<tr>
<td>NRSG 109 Transition for the Paramedic to the ASN Lab/Clinical</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 112 Maternal-Child Nursing</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 113 Maternal Child Nursing Clinical</td>
<td>2</td>
</tr>
<tr>
<td><strong>^</strong> NRSG 200 Complex Medical-Surgical Nursing for the ASN</td>
<td>3</td>
</tr>
<tr>
<td>NRSG 201 Complex Medical Surgical Nursing for the ASN Clinical</td>
<td>4</td>
</tr>
<tr>
<td>NRSG 202 Nursing Care of the Complex Family</td>
<td>2</td>
</tr>
<tr>
<td>NRSG 203 Nursing Care of the Complex Family Clinical</td>
<td>2</td>
</tr>
<tr>
<td><strong>^</strong> NRSG 204 Psychiatric Nursing</td>
<td>2</td>
</tr>
<tr>
<td><strong>^</strong> NRSG 205 Psychiatric Nursing Clinical</td>
<td>1</td>
</tr>
</tbody>
</table>

The math requirement and social sciences electives are subject to change for Fall 2010 pending final approval from National League for Nursing Accrediting Commission.

**Symbol Key**

- ^ Capstone Course
- # Courses must be successfully completed before admittance to the program
- <> BIOL 201 will substitute for BIOL 211
- **<>** CHEM 111 will substitute for CHEM 101
- X Advanced placement may be available for Certified Nursing Assistant - see program chair
Office Administration

Program Description
As the business office relies increasingly on technology, companies need a well-trained, take-charge person to ensure that daily tasks are handled quickly and efficiently. In Ivy Tech's Office Administration Program, you'll learn the technical and interpersonal skills that will make you a key player in day-to-day operations. Not only will you cover basics of word processing, spreadsheets and databases, but you'll also study more advanced areas such as desktop publishing, developing skills that will move you to the top of a company's must-hire list. Programs are tailored for beginning, intermediate and advanced skill levels.

Sample Careers
Administrative assistant, first line manager, legal secretary, software application specialist

Degrees Available
Associate of Applied Science, Technical Certificate

Certificates Offered
Microsoft Certified Application Specialist

Concentrations Offered
Administrative, Legal, Medical, Software Applications

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 61 credits in the following areas:

General Education Core 19
Professional/Technical Core 18
Concentration Courses 12
Regionally Determined Credits 12

General Education (19 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>ECON XXX</td>
<td>Economics Elective</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td>** MATH 1XX</td>
<td>Mathematics Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Life/Physical Sciences Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Humanities/Social Sciences Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical (18 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 103</td>
<td>Introduction to Computers with Word Processing</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 119</td>
<td>Document Processing</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 216</td>
<td>Business Communications</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 221</td>
<td>Organizational Leadership</td>
<td>3</td>
</tr>
</tbody>
</table>

Choose One of the Following Concentrations

Administrative Concentration (24 Credits)
This concentration prepares you for an office environment, covering skills such as word processing and microcomputer operating systems. As an administrative assistant, your tasks might include secretarial duties, scheduling work and planning meetings, taking minutes and composing correspondence.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFAD 114</td>
<td>Desktop Publishing</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 121</td>
<td>Office Procedures and Team Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 218</td>
<td>Spreadsheets</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 220</td>
<td>Records and Database Management</td>
<td>3</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Legal Concentration (24 Credits)
Legal office administrators perform and coordinate a law office's administrative activities and disseminate information to staff and clients. This concentration prepares you to use computers, business software and different legal research tools. Legal office administrators prepare correspondence and legal documents.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 101</td>
<td>Introduction to Paralegal Studies</td>
<td>3</td>
</tr>
<tr>
<td>PARA 102</td>
<td>Legal Research</td>
<td>3</td>
</tr>
<tr>
<td>PARA 103</td>
<td>Civil Procedure</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 218</td>
<td>Spreadsheets</td>
<td>3</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Medical Concentration (24 Credits)
Working in a medical office requires specific job skills, such as knowledge of medical terminology and transcription skills. Medical office administrators are responsible for a variety of administrative and clerical duties necessary to run a medical office efficiently.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HLHS 101</td>
<td>Medical Terminology</td>
<td>3</td>
</tr>
<tr>
<td>MEAS 137</td>
<td>Medical Insurance &amp; Basic Coding with Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 121</td>
<td>Office Procedures and Team Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 220</td>
<td>Records and Database Management</td>
<td>3</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Software Applications Concentration (24 Credits)
This concentration prepares you for an office environment, covering skills such as word processing, microcomputer operating systems, multimedia design and desktop publishing. With a software applications concentration, your career choice could range from software applications specialist to desktop publisher.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFAD 114</td>
<td>Desktop Publishing</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 214</td>
<td>Multimedia Design</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 218</td>
<td>Spreadsheets</td>
<td>3</td>
</tr>
<tr>
<td>OFAD 222</td>
<td>Database Applications</td>
<td>3</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Associate of Applied Science via Distance Education
To earn this degree, you must have 61 credits in the following areas:

General Education Core 19
Professional/Technical Core 42

General Education (19 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
</tbody>
</table>
### Paralegal Studies

#### Program Description
If you like writing, research and problem-solving, you'll love a career as a paralegal. Our Paralegal program provides students with the wide variety of skills needed to handle duties such as performing legal research, drafting legal correspondence, interviewing clients and managing trial exhibits. Courses are taught by attorneys who are experienced in the subject matter and familiar with the important role paralegals play as members of the legal team.

#### Sample Careers
Legal assistant, paralegal

#### Degrees Available
Associate of Science, Associate of Applied Science

#### Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

---

### Technical Certificate
To earn this degree, you must have 31 credits in the following areas:

<table>
<thead>
<tr>
<th>Area</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Core</td>
<td>7</td>
</tr>
<tr>
<td>Professional/Technical Core</td>
<td>3</td>
</tr>
<tr>
<td>Concentration Courses</td>
<td>9-18</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td>3-12</td>
</tr>
</tbody>
</table>

#### General Education (7 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 111</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>1</td>
</tr>
<tr>
<td>** XXXX XXX</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Professional/Technical (3 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFAD 103</td>
<td></td>
</tr>
<tr>
<td>OFAD 110</td>
<td></td>
</tr>
<tr>
<td>OFAD 121</td>
<td></td>
</tr>
<tr>
<td>OFAD 130</td>
<td></td>
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<tr>
<td>OFAD 114</td>
<td></td>
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<tr>
<td>OFAD 118</td>
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<tr>
<td>OFAD 210</td>
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<td>OFAD 212</td>
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<td>OFAD 223</td>
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<td>OFAD 224</td>
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<tr>
<td>OFAD 225</td>
<td></td>
</tr>
<tr>
<td>OFAD 226</td>
<td></td>
</tr>
</tbody>
</table>

---

### Choose One of the Following Concentrations

#### Administrative Concentration (21 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFAD 103</td>
<td></td>
</tr>
<tr>
<td>OFAD 121</td>
<td></td>
</tr>
<tr>
<td>OFAD 210</td>
<td></td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

#### Customer Service Concentration (21 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFAD 103</td>
<td></td>
</tr>
<tr>
<td>OFAD 121</td>
<td></td>
</tr>
<tr>
<td>OFAD 130</td>
<td></td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Certificate

**Microsoft Certified Application Specialist** (18 Credits)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFAD 103</td>
<td></td>
</tr>
<tr>
<td>OFAD 110</td>
<td></td>
</tr>
<tr>
<td>OFAD 204</td>
<td></td>
</tr>
<tr>
<td>OFAD 218</td>
<td></td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td>3</td>
</tr>
</tbody>
</table>
**Associate of Science**
Articulated transfer through an Associate of Science in Paralegal Studies is available with Ball State University and IUPUI-Fort Wayne. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to [http://www.ivytech.edu/](http://www.ivytech.edu/).

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

**Associate of Applied Science**
To earn this degree, you must have 64 credits in the following areas:

<table>
<thead>
<tr>
<th>General Education Core</th>
<th>19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/Technical Core</td>
<td>33</td>
</tr>
<tr>
<td>Regionally Determined Credits</td>
<td>12</td>
</tr>
</tbody>
</table>

**General Education (19 Credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Introduction to Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 112</td>
<td>Exposition and Persuasion</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 100</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td><strong>MATH 1XX</strong></td>
<td>Intermediate Algebra or Higher</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Humanities/Social Sciences Elective</td>
<td>3</td>
</tr>
<tr>
<td>* XXXX XXX</td>
<td>Life/Physical Sciences Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

**Professional/Technical (45 Credits)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINS 101</td>
<td>Introduction to Microcomputers</td>
<td>3</td>
</tr>
<tr>
<td>PARA 101</td>
<td>Introduction to Paralegal Studies</td>
<td>3</td>
</tr>
<tr>
<td>PARA 102</td>
<td>Legal Research</td>
<td>3</td>
</tr>
<tr>
<td>PARA 103</td>
<td>Civil Procedures</td>
<td>3</td>
</tr>
<tr>
<td>PARA 106</td>
<td>Tort Law</td>
<td>3</td>
</tr>
<tr>
<td>PARA 107</td>
<td>Contracts and Commercial Law</td>
<td>3</td>
</tr>
<tr>
<td>^ PARA 202</td>
<td>Litigation</td>
<td>3</td>
</tr>
<tr>
<td>PARA 203</td>
<td>Law Office Technology</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 108</td>
<td>Property Law</td>
<td>3</td>
</tr>
<tr>
<td>PARA 200</td>
<td>Legal Ethics</td>
<td>3</td>
</tr>
<tr>
<td>^ PARA 202</td>
<td>Litigation</td>
<td>3</td>
</tr>
<tr>
<td>PARA 203</td>
<td>Law Office Technology</td>
<td>3</td>
</tr>
<tr>
<td>PARA 204</td>
<td>Legal Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARA 205</td>
<td>Business Associations</td>
<td>3</td>
</tr>
<tr>
<td>PARA 209</td>
<td>Family Law</td>
<td>3</td>
</tr>
<tr>
<td>PARA 210</td>
<td>Wills, Trusts and Estates</td>
<td>3</td>
</tr>
<tr>
<td>PARA 211</td>
<td>Criminal Law and Procedure</td>
<td>3</td>
</tr>
<tr>
<td>PARA 280</td>
<td>Internship</td>
<td>3</td>
</tr>
<tr>
<td>PARA XXX</td>
<td>Paralegal Elective</td>
<td>3</td>
</tr>
</tbody>
</table>
**Paramedic Science**

**Program Description**
Does the idea of being an emergency first-responder make your heart beat a little faster? Are you an emergency medical technician who wants to get to the next level of emergency care and job opportunity? Then our Paramedic Science program may be for you. Through clinical and practical instruction as well as a field internship, you'll be prepared to function in the uncontrolled environment of emergency medicine in the pre-hospital setting. Upon completion, you'll qualify for state certification as an emergency medical technician-paramedic. Already a certified paramedic? Take just seven general education courses, and you'll earn an Associate of Science degree that transfers into four-year degree programs.

**Sample Careers**
EMT, paramedic

**Degrees Available**
Associate of Science, Associate of Applied Science

**Concentrations Offered**
None

*Availability of concentrations and degrees varies by campus. Contact your local campus for more information.*

The Paramedic Science program is accredited by the Commission on Accreditation of the Allied Health Education Program (CAAHEP), in collaboration with the Committee on Accreditation of Education Programs for the Emergency Medical Services Professional.

**Commission on Accreditation of Allied Health Education Programs**
1361 Park Street
Clearwater, FL 33756
(727) 210-2350

**Associate of Science**
Articulated transfer through an Associate of Science in Paramedic Science is available with the University of Southern Indiana. To view the Associate of Science transfer degree program and to see if it is available at your local Ivy Tech campus, students should go to [http://www.ivytech.edu/](http://www.ivytech.edu/).

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

**Associate of Applied Science/Associate of Science**
To earn this degree, you must have 66.5 credits in the following areas:

- **General Education Core**
  - APHY 101 Anatomy and Physiology I 3
  - APHY 102 Anatomy and Physiology II 3
  - * COMM 1XX Communications Elective 3
  - ENGL 111 English Composition 3
  - IVYT 1XX Life Skills Elective 1
  - * MATH 1XX Mathematics Elective 3
  - XXXX XXXX Humanities/Social Science Elective 3

  **General Education (19 Credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>APHY 101</td>
<td>3</td>
</tr>
<tr>
<td>APHY 102</td>
<td>3</td>
</tr>
<tr>
<td>* COMM 1XX</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 111</td>
<td>3</td>
</tr>
<tr>
<td>IVYT 1XX</td>
<td>1</td>
</tr>
<tr>
<td>* MATH 1XX</td>
<td>3</td>
</tr>
<tr>
<td>XXXX XXXX</td>
<td>3</td>
</tr>
</tbody>
</table>

  **Professional/Technical (47.5 Credits)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARM 102   Emergency Medical Technician - Basic Training</td>
<td>7.5</td>
</tr>
<tr>
<td>PARM 111   Preparatory</td>
<td>3</td>
</tr>
<tr>
<td>PARM 112   Prehospital Pharmacy</td>
<td>3</td>
</tr>
<tr>
<td>PARM 115   Airway, Patient Assessment</td>
<td>3.5</td>
</tr>
<tr>
<td>PARM 116   Clinical Applications I</td>
<td>1.5</td>
</tr>
<tr>
<td>PARM 200   Trauma</td>
<td>3</td>
</tr>
<tr>
<td>PARM 210   Medical I</td>
<td>6</td>
</tr>
<tr>
<td>PARM 213   Medical II</td>
<td>5</td>
</tr>
<tr>
<td>PARM 215   Special Considerations</td>
<td>3.5</td>
</tr>
<tr>
<td>PARM 216   Clinical Applications II</td>
<td>1.5</td>
</tr>
<tr>
<td>PARM 219   Clinical Applications III</td>
<td>1.5</td>
</tr>
<tr>
<td>PARM 220   Operations</td>
<td>2.5</td>
</tr>
<tr>
<td>PARM 221   Ambulance Internship</td>
<td>6</td>
</tr>
</tbody>
</table>

**Professional/Technical (47.5 Credits)**

- PARM 102 Emergency Medical Technician - Basic Training 7.5
- PARM 111 Preparatory 3
- PARM 112 Prehospital Pharmacy 3
- PARM 115 Airway, Patient Assessment 3.5
- PARM 116 Clinical Applications I 1.5
- PARM 200 Trauma 3
- PARM 210 Medical I 6
- PARM 213 Medical II 5
- PARM 215 Special Considerations 3.5
- PARM 216 Clinical Applications II 1.5
- PARM 219 Clinical Applications III 1.5
- PARM 220 Operations 2.5
- PARM 221 Ambulance Internship 6

**IVY TECH COMMUNITY COLLEGE**
Physical Therapist Assistant

Program Description
If you like to help people and want to work in the medical field, our Physical Therapist Assistant program may be for you. The PTA program will prepare you to work, under the supervision of a physical therapist, with physically impaired persons to help reverse adverse effects of physical disability. The therapist and assistant work together to provide appropriate therapeutic interventions and communication within the health care team. You will learn to administer therapeutic and psychosocial support for individuals with musculoskeletal, neurological, cardiopulmonary, vascular or other physiological dysfunctions.

Sample Careers
Physical Therapist Assistant

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information. See page 6 for contact information.

Associate of Science
To earn this degree, you must have 69.5 credits in the following areas:

<table>
<thead>
<tr>
<th>General Education Core</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/Technical Core</td>
<td>44.5</td>
</tr>
</tbody>
</table>

General Education (25 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td># APHY 101</td>
<td>Anatomy and Physiology I</td>
<td>3</td>
</tr>
<tr>
<td># APHY 102</td>
<td>Anatomy and Physiology II</td>
<td>3</td>
</tr>
<tr>
<td># COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td># ELGL 111</td>
<td>English Composition</td>
<td>3</td>
</tr>
<tr>
<td># IVYT 1XX</td>
<td>Life Skills Elective</td>
<td>1</td>
</tr>
<tr>
<td># MATH 118</td>
<td>Concepts in Mathematics</td>
<td>3</td>
</tr>
<tr>
<td># PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
</tr>
<tr>
<td># SOCI 111</td>
<td>Introduction to Sociology</td>
<td>3</td>
</tr>
<tr>
<td># SCIN 111</td>
<td>Physical Science</td>
<td>3</td>
</tr>
</tbody>
</table>

Professional/Technical (44.5 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td># PTAS 101</td>
<td>Introduction to Physical Therapist Assistant</td>
<td>3</td>
</tr>
<tr>
<td># PTAS 102</td>
<td>Diseases, Trauma, and Terminology</td>
<td>3</td>
</tr>
<tr>
<td># PTAS 103</td>
<td>Administrative Aspects of Physical Therapist Assisting</td>
<td>3</td>
</tr>
<tr>
<td># PTAS 106</td>
<td>PTA Treatment Modalities I</td>
<td>5</td>
</tr>
<tr>
<td># PTAS 107</td>
<td>Kinesiology</td>
<td>5</td>
</tr>
<tr>
<td># PTAS 115</td>
<td>Clinical I</td>
<td>2.5</td>
</tr>
<tr>
<td># PTAS 205</td>
<td>Clinical II</td>
<td>6</td>
</tr>
<tr>
<td># PTAS 207</td>
<td>PTA Treatment Modalities II</td>
<td>5</td>
</tr>
<tr>
<td># PTAS 215</td>
<td>Clinical III</td>
<td>6</td>
</tr>
<tr>
<td># PTAS 217</td>
<td>PTA Treatment Modalities III</td>
<td>5</td>
</tr>
<tr>
<td>^ PTAS 224</td>
<td>Current Issues and Review</td>
<td>1</td>
</tr>
</tbody>
</table>

^ Courses must be successfully completed before admittance to the program

Practical Nursing

Program Description
The licensed practical nurse (LPN) is an integral part of the health care team. The Practical Nursing program leads to a Technical Certificate and can be completed in approximately one year. The accredited program will prepare you to care for patients in a variety of health care settings, such as hospitals, convalescent centers, clinics, home care and physicians’ offices. Graduates are eligible to take the state licensure exam to become a licensed practical nurse.

Sample Careers
LPN, LPVN

Degrees Available
Technical Certificate

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.
## Pre-Engineering

### Program Description
The program is designed to prepare you for transfer to baccalaureate degree programs in engineering. The program curriculum will provide a strong foundation in science, math and technology. Special emphasis is placed on qualitative and quantitative analytical skills necessary in engineering design and problem solving while working in a cooperative team environment. Skills and knowledge can be applied to a wide range of baccalaureate engineering specialties including Electrical, Mechanical, Civil, Industrial, and Chemical engineering. The program will also focus on the applied aspects of science and engineering.

### Associate of Science
To earn this degree, you must have 66-67 credits in the following areas:
- **General Education Core**: 43 credits
- **Professional/Technical Core**: 23-24 credits

### General Education (43 Credits)
- **CHEM 105** General Chemistry I 5 credits
- **COMM 101** Fundamentals of Public Speaking 3 credits
- **ENGL 111** English Composition 3 credits
- **IVYT 1XX** Life Skills Elective 1 credit
- **MATH 211** Calculus I 4 credits
- **MATH 212** Calculus II 4 credits
- **MATH 261** Multivariate Calculus 4 credits
- **MATH 264** Differential Equations 3 credits
- **MATH 265** Linear Algebra 3 credits
- **PHYS 220** Mechanics 5 credits
- **PHYS 221** Heat, Electricity and Optics 5 credits
- **XXXX XXX** Humanities/Social Sciences elective 3 credits

### Professional/Technical (23-24 credits)
- **ENGR 116** Geometric Modeling for Visualization 2 credits
- **ENGR 140** Introduction to Engineering I 3 credits
- **ENGR 160** Introduction to Engineering II 3 credits
- **ENGR 190** Introduction to Engineering Design 2 credits
- **ENGR 251** Electrical Circuits I 4 credits
- **ENGR 260** Vector Mechanics-Statics 3 credits
- **ENGR 261** Dynamics 3 credits
- **ENGR XXX** Pre-engineering elective 3-4 credits

### Sample Careers
- **Transfer degree**

### Degrees Available
- **Associate of Science**

### Concentrations Offered
- **None**

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

### Symbol Key
- ^ Capstone Course
- X Advanced placement may be available for Certified Nursing Assistant – see program chair
- # Courses must be successfully completed before admittance to the program
Professional Communication

Program Description
The Professional Communication program provides you with a rich background in the arts and sciences. This background will equip you with problem solving skills, communication and writing abilities, and experience in communicating and designing texts using information technologies.

Sample Careers
Executive assistant, writer

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 64 credits in the following areas:
- General Education Core 31
- Professional/Technical Core 33

General Education (31 Credits)
- COMM 101 Fundamentals of Public Speaking 3
- ENGL 111 English Composition 3
- ENGL 112 Exposition and Persuasion 3
- IVYT 1XX Life Skills Elective 1
- MATH 1XX Mathematics Elective 3
- XXXX XXX Life/Physical Science Elective 3
- XXXX XXX Social/Behavioral Science Electives 6
- XXXX XXX Humanities Electives 9

Professional/Technical (33 Credits)
- BUSN 101 Introduction to Business 3
- CINS 101 Introduction to Microcomputers 3
- COMM 102 Introduction to Interpersonal Communication 3
- COMM 201 Introduction to Mass Communication 3
- COMM 202 Small Group Communication 3
- COMM 211 Fundamentals of Mass Communication 3
- ENGL 202 Creative Writing 3
- ENGL 211 Technical Writing 3
- PSYC 101 Introduction to Psychology 3
- VISC 101 Fundamentals of Design 3
- VISC 115 Introduction to Computer Graphics 3

Public Safety

Program Description
The Public Safety Technology program is designed to meet the ongoing needs of municipalities, students, business, and industries. The program will develop your technical skills, general knowledge, critical thinking, and problem solving abilities. Broad-based technical skills and critical thinking processes will assist you in adapting to changes in the work environment and promoting successful advancement on the job.

Sample Careers
Public safety specialist, firefighter, environmental safety specialist

Degrees Available
Associate of Applied Science, Technical Certificate

Concentrations Offered
Environmental Health and Safety, Fire Science, Hazardous Materials, Public Administration

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.
**Public Safety continued**

**Associate of Applied Science**
To earn this degree, you must have 67 credits in the following areas:
- General Education Core 19
- Professional/Technical Core 19
- Concentration Courses 12-16
- Regionally Determined Credits 12-13

**General Education (19 Credits)**
- **Biol 101** Introductory Biology 3
- **SCIN 111** Physical Science 3
- **CHEM 101** Introductory Chemistry I 3
- **COMM 101** Fundamentals of Public Speaking 3
- **COMM 102** Introduction to Interpersonal Communication 3
- **ENGL 111** English Composition 3
- **IVYT 1XX** Life Skills Elective 1
- **MATH 1XX** Mathematics Elective 3
- **POLS 101** Introduction to American Government & Politics 3
- **POLS 220** Public Administration 3

**Professional/Technical (19 Credits)**
- **PSAF 115** Hazmat Awareness and Operations 3
- **PSAF 120** First Responder 3
- **PSAF 121** Risk Management 3
- **PSAF 220** Incident Management Systems 3
- **PSAF 222** Computer Applications in Public Safety 3
- **PSAF 279** Public Safety Capstone Course 1
- **TECH 104** Computer Fundamentals for Technology 3

**Choose One of the Following Concentrations**

**Environmental Health and Safety Concentration (24 Credits)**
This concentration prepares you to work in state and local agencies, waste water facilities, private companies and labs where they often test samples in lab environments, monitor air and water quality and advise on nature conservation strategies, site management, species protection, urban and rural development, and pest control.

**Fire Science Concentration (27-28 Credits)**
This concentration prepares you to work in public and industrial fire departments and at airports and fire protection agencies where they often respond to and put out fires, operate emergency equipment and investigate fires.

- **FIRE 102** Fire Apparatus and Equipment 3
- **FIRE 103** Firefighting Strategy and Tactics 3
- **FIRE 201** Fire Protection Systems 3
- **FIRE 202** Fire Service Management 3
- **FIRE 204** Fire Service Hydraulics 3

**Homeland Security and Emergency Management Concentration (28 Credits)**
This concentration prepares you to work as first responders, firefighters, military personnel, corrections and law enforcement professionals, emergency managers, as well as corporate and government workers.

- **HSEM 101** Introduction to Homeland Security 3
- **HSEM 102** Principles of Emergency Management and Planning 3
- **HSEM 104** Disaster and Terrorism Awareness 3
- **HSEM 106** Disaster Response and Recovery Operations 3
- **HSEM 280** Homeland Security and Emergency Management Internship 4

**Public Administration Concentration (24 Credits)**
The Public Administration specialty prepares you to work in local, city and state government agencies where you might support city managers of other public administrators.

- **BUSN 105** Principles of Management 3
- **BUSN 208** Organizational Behavior 3

**Technical Certificate—Fire Science**
To earn this degree, you must have 31 credits in the following areas:
- General Education Core 7
- Professional/Technical Core 3
- Specialty Courses 6
- Regionally Determined Credits 15

**General Education (7 Credits)**
- **ENGL 111** English Composition 3
- **IVYT 1XX** Life Skills Elective 1
- **POLS 101** Introduction to American Government and Politics 3

**Professional/Technical (3 Credits)**
- **TECH 104** Computer Fundamentals for Technology 3

**Other Required Courses (21 Credits)**
- **FIRE 103** Firefighting Strategy and Tactics 3
- **FIRE 201** Fire Protection Systems 3
- Regionally Determined Credits 15
Radiation Therapy

Program Description
This newest degree track brings another strong addition to Ivy Tech's commitment to the growth of our Life Science initiatives through education and professional development in our community. The Radiation Therapy program provides didactic and clinical education opportunities for individuals who enjoy significant patient interaction and close patient/professional relationships. Clinical practice occurs at our partnering medical centers and oncology clinics throughout Indiana.

Sample Careers
Radiation Therapist

Degrees Available
Associate of Science

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 70 credits in the following areas:
- General Education Core 26
- Professional/Technical Core 44

General Education (26 Credits)
- APHY101 Anatomy and Physiology I 3
- APHY102 Anatomy and Physiology II 3
- COMM101 Fundamentals of Public Speaking 3
  or
- COMM102 Introduction to Interpersonal Communication 3
- ENGL111 English Composition 3
- IVYT1XX Life Skills Elective 1
- MATH13X Mathematics Elective 3
- PSYC101 Introduction to Psychology 3
- PHYS101 Physics I 4
- XXXX XXX Humanities Elective 3

Professional/Technical (44 Credits)
- HLHS101 Medical Terminology 3
- RDTH100 Introduction to Radiation Therapy 2
- RDTH145 Clinical Externship I 1
- RDTH150 Patient Care Radiation Oncology 3
- RDTH155 Clinical Externship II 3
- RDTH220 Techniques and Applications in Radiation Therapy 3
- RDTH223 Radiobiology and Safety 2
- RDTH225 Clinical Externship III 4
- RDTH230 Pathology and Treatment Principles I 2
- RDTH232 Radiation Therapy Physics 3
- RDTH233 Research Methodology in Radiation Oncology 1
- RDTH235 Clinical Externship IV 5
- RDTH240 Pathology and Treatment Principles II 2
- RDTH241 Treatment Planning 3
- RDTH242 Quality Management in Radiation Oncology 2
- RDTH243 Radiation Therapy Capstone Course 2
- RDTH245 Clinical Externship V 3
Respiratory Care

Program Description
Respiratory therapists are health care specialists who provide care for patients with breathing disorders. Care includes assessment, evaluation, and treatment of patients ranging in age from premature infants to the elderly. Therapists also work with adults who have chronic lung problems, such as asthma or emphysema. As a respiratory therapist, you must possess good communication skills. You will work side by side with physicians, nurses and other health care providers in caring for patients with lung disorders. As part of the health care team, you help with interviewing patients, making recommendations to physicians to change therapy based on your assessments, and providing patient and family education about lung disease.

Sample Careers
Respiratory therapist

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

The Respiratory Care program is accredited by the Commission on Accreditation for Respiratory Care (CoARC), 1248 Harwood Road; Bedford, TX 76021-4244; (817) 283-2835; www.coarc.com

### Associate of Science

To earn this degree, you must have 71-73 credits in the following areas:

<table>
<thead>
<tr>
<th>General Education Core</th>
<th>25-27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional/Technical Core</td>
<td>46</td>
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</table>

#### General Education (25-27 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td># APHY 101</td>
<td>Anatomy and Physiology I</td>
<td>3</td>
</tr>
<tr>
<td># APHY 102</td>
<td>Anatomy and Physiology II</td>
<td>3</td>
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<tr>
<td><strong>#BIOC 1XX</strong></td>
<td>Microbiology Elective</td>
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<tr>
<td>* COMM 101</td>
<td>Fundamentals of Public Speaking</td>
<td>3</td>
</tr>
<tr>
<td>or * COMM 102</td>
<td>Introduction to Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td><strong>#CHEM 1XX</strong></td>
<td>Chemistry Elective</td>
<td>3-4</td>
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<tr>
<td># ENGL 111</td>
<td>English Composition</td>
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<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
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<tr>
<td>MATH 1XX</td>
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<tr>
<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>or SOCI 111</td>
<td>Introduction to Sociology</td>
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</table>

#### Professional/Technical (46 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>RESP 121</td>
<td>Introduction to Respiratory Care</td>
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<tr>
<td>RESP 122</td>
<td>Therapeutic Modalities</td>
<td>3</td>
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<tr>
<td>RESP 123</td>
<td>Cardiopulmonary Physiology</td>
<td>3</td>
</tr>
<tr>
<td>RESP 125</td>
<td>Critical Care I</td>
<td>3</td>
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<tr>
<td>RESP 126</td>
<td>Clinical Medicine I</td>
<td>3</td>
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<tr>
<td>RESP 129</td>
<td>Respiratory Pharmacology</td>
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<tr>
<td>RESP 134</td>
<td>Clinical Applications I</td>
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<tr>
<td>RESP 137</td>
<td>Clinical Applications II</td>
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<tr>
<td>RESP 218</td>
<td>Clinical Applications in Critical Care</td>
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<tr>
<td>RESP 219</td>
<td>Clinical Application in Critical Care I</td>
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<td><strong>RESP 220</strong></td>
<td>Clinical Application in Critical Care II</td>
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<td>RESP 221</td>
<td>Cardiopulmonary Diagnostics</td>
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<td>RESP 222</td>
<td>Critical Care II</td>
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<tr>
<td>RESP 224</td>
<td>Clinical Medicine II</td>
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<td>^ RESP 226</td>
<td>Continuing Care</td>
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<tr>
<td>RESP 229</td>
<td>Emergency Management</td>
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<tr>
<td>RESP 237</td>
<td>Clinical Applications of Advanced Critical Care and Specialty Rotations</td>
<td>3</td>
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</tbody>
</table>

# Courses must be successfully completed before admittance to the program
***RESP 218 can be substituted for RESP 219 and RESP 220.
* Elective is defined as a course chosen by the student from the inventory of courses available on a campus.
** Regionally determined
^ Capstone Course
Surgical Technology

Program Description
A career in surgical technology is very fast-paced and challenging. You may be able to hold a beating heart in your hand. You may be part of a team in the OR that works on replacing a total hip or knee in the orthopedic rotation at your site. You will certainly hand many different instruments to the surgeon in the correct fashion and at the correct time. You will be the keeper of the sterile field. This is a very rewarding career in the Health Science Field. It is not nursing; you do a very specific technical job and work under the RN and Surgeon.

Sample Careers
Surgical Technologist

Degrees Available
Associate of Science, Associate of Applied Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

The Surgical Technology program is accredited by the Commission on Accreditation of the Allied Health Education Program (CAAHEP), in collaboration with the Accreditation Review Council on Education in Surgical Technology and Surgical Assisting (ARC/STSA)

Commission on Accreditation of Allied Health Education Programs
1361 Park Street
Clearwater, FL 33756
(727) 210-2350

Associate of Science
Articulated transfer through an Associate of Science in Surgical Technology is available with IUPU-FW. To view these Associate of Science transfer degree programs and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 68-69 credits in the following areas:

General Education Core 19
Professional/Technical Core 49-50

General Education (19 Credits)

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td># APHY 101</td>
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<tr>
<td>APHY 102</td>
<td>Anatomy and Physiology II</td>
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<tr>
<td>* COMM 101</td>
<td>Fundamentals of Public Speaking</td>
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</tr>
<tr>
<td>or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* COMM 102</td>
<td>Introduction to Interpersonal Communication</td>
<td>3</td>
</tr>
<tr>
<td># ENGL 111</td>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>IVYT 1XX</td>
<td>Life Skills Elective</td>
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<tr>
<td>* # MATH 1XX</td>
<td>Mathematics Elective</td>
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</table>

Professional/Technical (49-50 Credits)

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<th>Title</th>
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<tbody>
<tr>
<td>BIOL 2XX</td>
<td>General Microbiology</td>
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<tr>
<td># HLHS 101</td>
<td>Medical Terminology</td>
<td>3</td>
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<tr>
<td></td>
<td>Medical Law and Ethics</td>
<td>3</td>
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<tr>
<td>SURG 111</td>
<td>Fundamentals of Surgical Technology</td>
<td>4</td>
</tr>
<tr>
<td>SURG 112</td>
<td>Application of Surgical Fundamentals</td>
<td>2</td>
</tr>
<tr>
<td>SURG 113</td>
<td>Surgical Procedures I</td>
<td>3</td>
</tr>
<tr>
<td>SURG 114</td>
<td>Clinical Applications I</td>
<td>3</td>
</tr>
<tr>
<td>SURG 211</td>
<td>Surgical Procedures II</td>
<td>6</td>
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<tr>
<td>SURG 212</td>
<td>Clinical Applications II</td>
<td>9</td>
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<tr>
<td>^ SURG 213</td>
<td>Surgical Procedures III</td>
<td>3</td>
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<tr>
<td>SURG 214</td>
<td>Clinical Applications III</td>
<td>7</td>
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<tr>
<td>XXXX XXXX</td>
<td>Pharmacology</td>
<td>3</td>
</tr>
</tbody>
</table>

# Courses must be successfully completed before admittance to the program
Sustainable Energy

Program Description
Energy is a fundamental requirement for the sustenance of life, playing key roles in human ecology and in the development of the earth's flora and fauna. Due to continued growth in human population, with concomitant greater growth in energy demand, severe problems in the sustainability of needed energy resources could become acute. The Sustainable Energy program will examine the growth of energy consumption, the sustainability of energy supply, the long-term energy resources available, and the resulting environmental impacts caused on global and local scales. The program is designed to provide a solid foundation in the fundamental design/installation techniques required to work with renewable technologies.

Sample Careers
Operate and maintain wind turbines, install photovoltaic and geothermal systems, design and maintain equipment across the industry.

Degrees Available
Associate of Applied Science, Technical Certificate

Concentrations Offered
Home Technical Integration/Energy Auditing, Renewable Energy Systems, Wind Energy Technology

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Applied Science
To earn this degree, you must have 62-64 credits in the following areas:
General Education Core 20-22
Professional/Technical Core 18
Concentration Courses 12
Regionally Determined Credits 12

General Education (20-22 Credits)
ENGL 111 English Composition 3
COMM 101 Fundamentals of Public Speaking 3
MATH 1XX Mathematics Elective 3
SCIN 101 Science of Traditional & Alternative Energy 4
IVYT XXX Life Skill Elective 1
XXXX XXX Humanities/Social Sci./Math Elective 6-8

Professional/Technical (18 Credits)
INDT 103 Motors and Motor Controls 3
INDT 104 Fluid Power Basics 3
INDT 106 Introduction to the Workplace and Safety 3
INDT 113 Basic Electricity 3
INDT 203 Machine Maintenance 3
SUST 280 Sustainable Energy Internship 3

Choose One of the Following Concentrations

Wind Energy Technology Concentration (24 Credits)
SUST 111 Wind Turbine Mechanical Systems I 3
SUST 211 Wind Turbine Mechanical Systems II 3
SUST 101 Wind Power 3
SUST 220 Wind Turbine Controls 3
Regionally Determined Credits 12

Renewable Energy Systems Concentration (24 Credits)
IMTC 122 Electrical Wiring Fundamentals 3
SUST 100 Introduction to Renewable Energy Systems 3
SUST 102 Solar, Wind, and Geothermal Systems 3
SUST 201 Bioenergy Feedstock Systems 3
Regionally Determined Credits 12

Home Technology Integration/Energy Auditing Concentration (24 Credits)
IMTC 122 Electrical Wiring Fundamentals 3
EECT 107 Introduction to Home Automation 3
EECT 115 Home Technology Integration 3
HVAC 203 Heat and Loss Calculations 3
Regionally Determined Credits 12

Technical Certificate
To earn this degree, you must have 31 credits in the following areas:
General Education Core 7
Professional/Technical Core 3
Concentration Courses 9
Regionally Determined Credits 12

General Education (7 Credits)
COMM 101 Fundamentals of Public Speaking 3
IVYT XXX Life Skill Elective 1
MATH 1XX Mathematics Elective 3

Professional/Technical (3 Credits)
INDT 113 Basic Electricity 3

Choose One of the Following Concentrations

Wind Energy Technology Concentration (21 credits)
SUST 111 Wind Turbine Mechanical Systems I 3
SUST 211 Wind Turbine Mechanical Systems II 3
SUST 220 Wind Turbine Controls 3
Regionally Determined Credits 12

Renewable Energy Systems Technology Concentration (21 credits)
IMTC 122 Electrical Wiring Fundamentals 3
SUST 100 Intro to Renewable Energy Systems 3
SUST 123 Fundamentals of Biofuel Production 3
Regionally Determined Credits 12

Home Technology Integration/Energy Auditing Concentration (21 credits)
EECT 107 Introduction to Home Automation 3
EECT 115 Home Technology Integration 3
IMTC 122 Electrical Wiring Fundamentals 3
Regionally Determined Credits 12
Therapeutic Massage

Program Description
The Therapeutic Massage program addresses the theory and hands-on techniques of therapeutic massage. Massage skills include assessment, relaxation massage, therapeutic massage, deep tissue, sports massage, hydrotherapies, applications for special populations including pregnant women, children, geriatrics, and the disabled. Anatomy, physiology, disease conditions, pharmacology and their effects on the body alone and during massage applications are studied thoroughly, to promote understanding of massage indications and contraindications. Psychological and emotional issues, legal and ethical aspects, and business development are addressed. The program is designed to prepare you for beginning entry into the massage profession, with an emphasis on working within the wellness community.

Sample Careers
Massage therapist

Degrees Available
 Associate of Applied Science, Technical Certificate

Concentrations Offered
None
Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Completion of the Technical Certificate provides the student in excess of 700 hours of training and preparation to sit for the NCBTMB (National Certification Board for Therapeutic Massage and Bodywork) National Certification Exam. Completion of the AAS degree provides the student in excess of 1000 hours of preparation to sit for the National Certification Exam.

Associate of Applied Science
To earn this degree, you must have 67 credits in the following areas:
General Education Core 19
Professional/Technical 48

General Education (19 Credits)
APHY 101 Anatomy and Physiology I 3
APHY 102 Anatomy and Physiology II 3
ENGL 111 English Composition 3
IVYT 1XX Life Skills Elective 1
MATH 1XX Mathematics Elective 3
XXXX XXX Humanities/Social Science Elective 3
XXXX XXX English/Communications Elective 3

Professional/Technical (48 Credits)
HLHS 101 Medical Terminology 3
TMAS 101 Holistic Approach to Massage Therapy 3
TMAS 102 Legal Massage Applications 3
TMAS 120 Massage Technician Training I 3
TMAS 122 Massage Financial Management 3
TMAS 125 Acupressure Theory and Methods 3
TMAS 140 Massage Technician Training II 3
TMAS 141 Massage Through the Life Span 3
TMAS 201 Sports, Injuries and Hydrotherapies 3
TMAS 202 Deep Tissue 3
TMAS 203 Herbs, Drugs and Massage 3
TMAS 205 Pathology and Massage 3
TMAS 210 Biomechanics 3
^TMAS 220 Advanced Techniques 3
TMAS 221 Business Development 3
TMAS XXX Massage Elective 3

Technical Certificate
To earn this degree, you must have 49 credits in the following areas:
General Education Core 10
Professional/Technical 39

General Education (10 Credits)
APHY 101 Anatomy and Physiology I 3
APHY 102 Anatomy and Physiology II 3
IVYT 1XX Life Skills Elective 1
XXXX XXX English/Communications Elective 3

Professional/Technical (39 Credits)
HLHS 101 Medical Terminology 3
TMAS 101 Holistic Approach to Massage Therapy 3
TMAS 102 Legal Massage Applications 3
TMAS 120 Massage Technician Training I 3
TMAS 122 Massage Financial Management 3
TMAS 125 Acupressure Theory and Methods 3
TMAS 140 Massage Technician Training II 3
TMAS 141 Massage Through the Life Span 3
TMAS 201 Sports, Injuries and Hydrotherapies 3
TMAS 203 Herbs, Drugs and Massage 3
TMAS 205 Pathology and Massage 3
TMAS 210 Biomechanics 3
TMAS XXX Massage Elective 3

IVY TECH COMMUNITY COLLEGE
Transportation, Distribution and Logistics

Program Description
Transportation and logistics is a major industry in Indiana. Many companies now depend on their ability to accurately move goods around the world. Ivy Tech Community College's Transportation, Distribution and Logistics program prepares a workforce that meets this demand. Indiana's central location and access to national and world markets has attracted a large increase in the companies in the transportation, distribution and logistics arena.

The logistics and transportation field uses high technology and information systems to track goods and increase efficiencies. There are many opportunities for careers in transportation and logistics management using the latest technologies in supply management, distribution systems, and inter-modal transportation.

Sample Careers
Shipping/receiving clerk, cargo and freight agent, first line supervisor

Degrees Available
Associate of Science

Concentrations Offered
None

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.

Associate of Science
To earn this degree, you must have 64 credits in the following areas:

General Education Core 31
Professional/Technical Core 33

General Education (31 Credits)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>COMM 101</td>
<td>Fundamentals of Public Speaking</td>
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<tr>
<td>ECON XXX</td>
<td>Economics Elective</td>
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<tr>
<td>ENGL 111</td>
<td>English Composition</td>
<td>3</td>
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<td>GEOG 207</td>
<td>World Geography</td>
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<td>IVIT 1XX</td>
<td>Life Skills Elective</td>
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<tr>
<td>MATH 131</td>
<td>Algebra/Trigonometry I</td>
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<tr>
<td>MATH 132</td>
<td>Algebra/Trigonometry II</td>
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<td>PHIL 102</td>
<td>Introduction to Ethics</td>
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<td>PSYC 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
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<tr>
<td>SOCI 111</td>
<td>Introduction to Sociology</td>
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<td>XXXX XXXX</td>
<td>Life/Physical Sciences Elective</td>
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Professional/Technical (33 Credits)

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<th>Credits</th>
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<tbody>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
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<tr>
<td>BUSN 101</td>
<td>Introduction to Business</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 102</td>
<td>Business Law</td>
<td>3</td>
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<tr>
<td>BUSN 105</td>
<td>Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 227</td>
<td>Logistics/Supply Chain Management</td>
<td>3</td>
</tr>
<tr>
<td>BUSN 228</td>
<td>Principles of Purchasing</td>
<td>3</td>
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<tr>
<td>BUSN 229</td>
<td>Transportation Systems</td>
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<tr>
<td>BUSN 230</td>
<td>Business Statistics</td>
<td>3</td>
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<tr>
<td>CNS 101</td>
<td>Introduction to Microcomputers</td>
<td>3</td>
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<td>MKTG 101</td>
<td>Principles of Marketing</td>
<td>3</td>
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<tr>
<td>OPMT 224</td>
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</tbody>
</table>

Visual Communication

Program Description
Visual Communications students are provided with all the skills necessary to work in the design industry. You will develop advanced skills and knowledge in your particular field of interest. The program prepares you for the world of work by developing real-world internship and design exhibit opportunities. You will also develop a professional print and media portfolio that will be critiqued by local industry representatives. You will take part in mock interviews with these representatives and get important feedback on what it takes to get a job in the design field.

Sample Careers
Camera operator, graphic designer, production assistant, webmaster

Degrees Available
Associate of Science, Associate of Applied Science, Associate of Fine Arts

Concentrations Offered
Film and Video, Graphic Design, Multimedia Production Photography, Web Design, Web Development

Availability of concentrations and degrees varies by campus. Contact your local campus for more information.
Associate of Science
Articulated transfer through an Associate of Science in Visual Communications is available with IUPUI and the University of Southern Indiana. To view this Associate of Science transfer degree program and to see if they are available at your local Ivy Tech campus, students should go to http://www.ivytech.edu/.

Students are encouraged to review these options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Additional opportunities for course and program transfer may also be available at your local campus. Students should contact the transfer office of their local Ivy Tech for further information.

Associate of Applied Science
To earn this degree, you must have 67 credits in the following areas:
- General Education Core 19
- Professional/Technical Core 24
- Concentration Core 12
- Regionally Determined Credits 12

General Education (19 Credits)
- ARTH 101 Survey of Art and Culture I 3
- ARTH 102 Survey of Art and Culture II 3
- * COMM 101 Fundamentals of Public Speaking 3
- * COMM 102 Introduction to Interpersonal Communication 3
- ENGL 111 English Composition 3
- IVYT 1XX Life Skills Elective 1
- * MATH 1XX Math Elective 3
- * XXXX XXX Life/Physical Science Elective 3

Professional/Technical (24 Credits)
- VISC 101 Fundamentals of Design 3
- VISC 102 Fundamentals of Imaging 3
- VISC 110 Web Design I 3
- VISC 115 Introduction to Computer Graphics 3
- VISC 201 Electronic Imaging 3
- VISC 207 Portfolio Preparation 3
- VISC 213 Advanced Electronic Imaging 3

Choose One of the Following Concentrations

Film and Video Concentration (24 Credits)
This concentration exposes you to a broad technical core of courses representing key topics such as organizing the visual fields, color theory and application, image acquisition and manipulation technology, You will learn to operate television, video or motion picture.

- VIDT 110 Production Editing I 3
- VIDT 111 Studio and Field Production I 3
- VIDT 202 Studio and Field Production II 3
- VISC 105 Video and Sound 3
- Regionally Determined Credits 12

Graphic Design Concentration (24 Credits)
This concentration involves creating 2D commercial designs for print. You will learn approaches for production, printing, planning, business issues, and web design and its relationship to print.

- VISC 114 Graphic Design I 3
- VISC 113 Typography 3
- VISC 116 Electronic Illustration 3
- VISC 217 Graphic Design II 3
- Regionally Determined Credits 12

Photography Concentration (24 Credits)
This concentration will expose you to a broad technical core of courses representing key topics such as: organizing the visual field, color theory and application, image acquisition and manipulation technology, the computer as a powerful tool, the professional visual artist as a business person and exit portfolio.

- PHOT 104 Basic Photography 3
- PHOT 106 Studio Practices 3
- PHOT 107 Intermediate Photography 3
- PHOT 201 Principles of Color Photography 3
- Regionally Determined Credits 12

Web Design Concentration (24 Credits)
This concentration provides you with approaches to developing interactive content for CD/DVDs and websites, addressing issues with production-quality digital video and sound editing. Enjoy cre-
# Comprehensive Course Description List (Alphabetical Order)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCT 090</td>
<td>Introduction to Accounting</td>
<td>3</td>
<td>None. Introduces the basic principles of accounting as used in a variety of office settings. Includes the principles of debit and credit, double-entry bookkeeping, use of journals, and analyzing transactions. Uses of ledgers, posting procedures, petty cash, banking procedures, payroll, depreciation, work sheets, balance sheets, and income statements are covered as well.</td>
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</tr>
<tr>
<td>ACCT 101</td>
<td>Financial Accounting</td>
<td>Transfer IN 3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Introduces the fundamental principles, techniques, and tools of financial accounting. The development and use of the basic financial statements pertaining to corporations both service and retail.</td>
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</tr>
<tr>
<td>ACCT 102</td>
<td>Managerial Accounting</td>
<td>Transfer IN 3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Emphasizes managerial accounting concepts, general versus cost accounting systems, cost behavior, cost-volume-profit analysis, standard cost systems, responsibility accounting, incremental analysis, and capital investment analysis.</td>
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<tr>
<td>ACCT 105</td>
<td>Income Tax</td>
<td>3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Offers an overview of federal and state income tax law for individuals including taxable income, capital gains and losses, adjustments, standard and itemized deductions, tax credits and appropriate tax forms. Introduces tax concepts needed by a sole proprietorship.</td>
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<tr>
<td>ACCT 106</td>
<td>Payroll Accounting</td>
<td>3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Covers payroll calculating and reporting including various withholding taxes, employer payroll taxes, typical insurance and other arrangements affecting the preparation of payroll registers and employees’ earnings records.</td>
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<tr>
<td>ACCT 109</td>
<td>Personal Finance</td>
<td>3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Examines the process of setting and achieving financial goals. Emphasizes managing financial resources, budgeting for current expenses, projecting cash flow and managing short- and long-term credit. Includes use of insurance to reduce risks and vehicles for saving and investing.</td>
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<tr>
<td>ACCT 112</td>
<td>Managerial Accounting Application</td>
<td>1</td>
<td>Program Advisor Approval. Presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in a Managerial Accounting Application course.</td>
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</tr>
<tr>
<td>ACCT 118</td>
<td>Financial Concepts for Accounting</td>
<td>3</td>
<td>None. Surveys the applications of mathematics to business and accounting activities. Includes a review of basic mathematical operations and their subsequent application to such commercial activities as payroll, consumer finance, business borrowing, inventory control, pricing, depreciation, and time value of money.</td>
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<tr>
<td>ACCT 122</td>
<td>Accounting Systems Applications</td>
<td>3</td>
<td>ACCT 101. Solves accounting problems using software similar to what is currently used in business. Includes installation, operation, and analysis of an accounting software package or packages.</td>
<td></td>
</tr>
<tr>
<td>ACCT 201</td>
<td>Intermediate Accounting I</td>
<td>3</td>
<td>ACCT 102. Studies accounting principles and applications at an intermediate level pertaining to the income statement and balance sheet, cash and cash equivalents, receivables, inventories, plant assets and intangible assets, current and contingent liabilities, corrections of errors, and statement of cash flows. Includes analysis of bad debts, inventory valuation, repairs and maintenance, depreciation of plant assets and present value applications.</td>
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<tr>
<td>ACCT 202</td>
<td>Intermediate Accounting II</td>
<td>3</td>
<td>ACCT 201. Continues studies of Intermediate Accounting I and includes long-term investments, long-term debt, stockholders’ equity, special accounting problems and analysis, and financial statement analysis. Also includes are corporate capital and treasury stock transactions, dividends, earnings per share, accounting for income taxes, and creation of financial statements from incomplete records.</td>
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<tr>
<td>ACCT 203</td>
<td>Cost Accounting I</td>
<td>3</td>
<td>ACCT 102. Examines the manufacturing process in relation to accumulation of specific costs of manufactured products. Studies various cost accounting report forms, material, labor control, and allocation of manufacturing costs to jobs and departments.</td>
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<tr>
<td>ACCT 204</td>
<td>Cost Accounting II</td>
<td>3</td>
<td>ACCT 203. Studies the master or comprehensive budget, flexible budgeting and capital budgeting. Emphasizes tools for decision-making and analysis. Introduces human resource accounting.</td>
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<tr>
<td>ACCT 206</td>
<td>Advanced Managerial Accounting</td>
<td>3</td>
<td>ACCT 102. Provides an intermediate understanding of accounting records and management decision making, with topics including internal accounting records and quantitative business analysis.</td>
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<tr>
<td>ACCT 207</td>
<td>Accounting for Government and Nonprofit Entities I</td>
<td>3</td>
<td>ACCT 101. Emphasizes the similarities and differences between government, nonprofit and commercial accounting methods and procedures. Exposes students to the basic fund accounting cycle for the general fund and other special funds.</td>
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<tr>
<td>ACCT 208</td>
<td>Advanced Income Tax</td>
<td>3</td>
<td>ACCT 101 and ACCT 105. Studies procedures and problems pertaining to federal and state income tax laws for partnerships and corporations. Includes a review and in-depth study of concepts related to proprietorships covered in Income Tax I.</td>
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<tr>
<td>ACCT 209</td>
<td>Auditing</td>
<td>3</td>
<td>ACCT 201. Covers public accounting organization and operation including internal control, internal and external auditing, verification and testing of the balance sheet and operating accounts, and the auditor’s report of opinion of the financial statements.</td>
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<tr>
<td>ACCT 212</td>
<td>Business Finance</td>
<td>3</td>
<td>ACCT 101, BUSN 101 and MATH 111 or demonstrated competency through appropriate assessment or earning a grade of “C” or better in MATH 035 or MATH 043. Introduces tools and techniques of financial analysis. Financial analysis includes but is not limited to use of ratios, common size statements, pro forma statements.</td>
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</tr>
<tr>
<td>ACCT 217</td>
<td>Intermediate Accounting Applications I</td>
<td>1</td>
<td>ACCT 102. Presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in ACCT 201. Uses computerized problems.</td>
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</tr>
<tr>
<td>ACCT 218</td>
<td>Intermediate Accounting Applications II</td>
<td>1</td>
<td>ACCT 102. Presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in Intermediate Accounting II. Uses computerized problems.</td>
<td></td>
</tr>
</tbody>
</table>
Prerequisites: ACT 102. Presents series of planned accounting learning problems and activities designed to accompany concepts and theories included in Cost Accounting I. Uses computerized problems.

ACCT 225 Integrated Accounting Systems 3 Credits
Prerequisites: ENGL 111 and ACT 201 and OFAD 218 and demonstrated competency through appropriate assessment or successful completion of MATH 111 or MATH 118. Uses integrated accounting software package(s) to illustrate computerized accounting practices. The general ledger will be integrated with accounts receivable, accounts payable, and other accounting modules.

ACCT 271 Accounting Applications 3 Credits
Prerequisite: ACT 201 or Program Chair Approval. Provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area.

ACCT 272 Business Writing for Accounting 3 Credits
Prerequisite: BUSN 101, CHNS 101, ENGL 111. Focuses on the effective use of Standard English in written, business correspondence. Also addresses the psychology of effective communication. Students will apply the ten characteristics of effective writing and practice the ten guidelines for writing effective sentences and paragraphs. Students will practice using a reference manual for guidance in writing Standard English.

ACCT 273 VITA Tax Seminar 1 Credit
Prerequisite: ACT 105. This volunteer program prepares students to process both federal and state income tax returns for eligible citizens. Students will complete an IRS-developed training program for two levels of service — Basic and Intermediate. This level of training will permit the volunteers to prepare most individual tax returns. Student volunteers will be required to successfully pass the IRS Certification Tests for two levels of tax preparation service. Once certified, student volunteers will conduct interviews with VITA clients, prepare both the federal and state tax returns using IRS eFile software, and undergo a Quality Review Process to ensure accurate and acceptable tax returns for electronic filing in addition to providing tax information and tax law to VITA clients.

ACCT 280 Co-op/Internship 1-6 Credits
Prerequisites: Program Chair Approval. Provides students with the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit toward an associate degree.

ACCT 298 Field Study 1-6 Credits
Prerequisites: Program Chair approval. Provides students with the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit toward an associate degree.

ADMF 101 Key Principles of Advanced Manufacturing (MSSC) 3 Credits
Prerequisite: None. Introduces the basic principles and practices of Safety and Quality used in manufacturing environments. Safety instruction covers topics including; Material Safety Data Sheets (MSDS), confined space, lock out/tag out, zero energy state, hazardous materials, storage of flammable materials, storage of fuel gas and high pressure gas cylinders, portable powered tool safety, hand tool safety, record keeping, training, employer enforcement of safety regulations, and right to know. This course also covers current quality control concepts and techniques in industry with emphasis on modern manufacturing requirements. Topics of instruction include basic statistical and probability theory, sampling techniques, process control charts, nature of variation, histograms, attributes and variable charts. This course will use lecture, lab, online simulation and programming to prepare students for Production Certification Testing through Manufacturing Skill Standards Council (MSSC).

ADMF 102 Technology in Advanced Manufacturing (MSSC) 3 Credits
Prerequisite: ADMF 101. Introduces manufacturing processes and basic mechanical, electrical, and fluid power principles and practices used in manufacturing environments. Topics include: types of production, production materials, machining and tooling, manufacturing planning, production control, and product distribution will be covered. Students will be expected to understand the product life cycle from conception through distribution. This course also focuses on technologies used in production processes. Basic power systems, energy transfer systems, machine operation and control will be explored. This course will use lecture, lab, online simulation and programming to prepare students for Production Certification Testing through Manufacturing Skill Standards Council (MSSC).

ADMF 103 Graphic Communications 3 Credits for Manufacturing
Prerequisite: None. Introduces basic blueprint reading skills commonly used in the manufacturing industry. Areas of study include: interpretation of drawing dimensions and notes to ANSI standards for machining including; Geometric Dimensioning and Tolerancing (DT), welding, fabrication applications and inspection techniques. Students will be able to use Computer Aided Design software (CAD) to create 3D models and working drawings.

ADMF 106 Supervision and Teams at Work 3 Credits
Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and/or ENGL 032. Introduces basic employee development with emphasis on the responsibilities of a newly-appointed supervisor. Emphasizes organizational structure, motivation, delegation of authority, interviews, orientation and induction of new employees, employee performance evaluations and dealing with employee conflict.

ADMF 109 Green Manufacturing Operations 3 Credits
Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 or ENGL 032. Introduces the basic concepts of restructuring the manufacturing workplace and technological activity to incorporate environmental concerns. This course serves as an introduction to the basic principles of "green" manufacturing.

ADMF 112 Mechatronics I 3 Credits
Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Introduces the basic principles and practices of mechanical technology used in advanced manufacturing and mechatronic systems. This course will examine the appropriate procedures for the installation, troubleshooting, and repair of mechanical machine components and Issues including; material properties, surface finish, lubrication, and preventive maintenance of mechatronic systems will be discussed.

ADMF 113 Electrical & Electronic Principles 3 Credits for Manufacturing
Prerequisite: ADMF 102 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Introduces electrical and electronics topics common to Advanced Manufacturing Technology. Material will concentrate on practical techniques for proper and safe use of basic test equipment and hand tools. Techniques for connecting various types of circuits and power distribution will be introduced. Electrical wiring, circuit theory, soldering, testing, scheduling and calculations will be studied. An applied knowledge of Alternating Current (AC) and Direct Current (DC) voltage, resistance, and current will be presented through lecture and lab activities. Written communication skills will be used to document and report circuit descriptions, circuit problems, and repair procedures.

ADMF 115 Materials & Processes for Manufacturing 3 Credits
Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 024 Introduction to College Writing I and ENGL 031 Reading Strategies for College I. Introduces materials and processes common to Advanced Manufacturing Technology. This course will emphasize a practical understanding of materials used in production processes. Techniques for proper selection, evaluation, measurement and testing of materials will be covered. Students will be required to perform basic manual and machine production processes in a project oriented learning environment.
ADMF 116 Automation & Robotics in Manufacturing I 3 Credits
Prerequisite: ADMF 102 and MATH 111 or MATH 035 or MATH 043.
Introduces the basic theory, operation, and programming of automated manufacturing systems. The course will focus on three main types of manufacturing automation including: Programmable Logic Controllers (PLC), Computer Numerically Controlled Machines (CNC), and Robotics. Students will be required to design, program and troubleshoot computer controlled machine logic and production processes in a project oriented learning environment.

ADMF 118 World Class Manufacturing 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces the basic concepts of manufacturing operations management and production control activity. This course serves as an introduction to the effective use of the principles of manufacturing competitiveness, company profitability, and superior customer service.

ADMF 119 Logistics in Manufacturing 3 Credits
Prerequisites: None. Introduces students to the various components of logistics with emphasis on how logistics relate to manufacturing operations. Topics will include logistics systems, supply chain management, order, demand inventory and warehouse management, and the control systems and automated components of logistics systems. Logistics concepts are approached from a manufacturing perspective with a focus on system integration and automation and lean manufacturing applications.

ADMF 122 Mechatronics II 3 Credits
Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Introduces the common types of Programmable Logic Controllers (PLCs) and electric motor drive systems used in advanced manufacturing. Topics covered will include PLC theory, PLC installation, control wiring, ladder diagrams, AC & DC motor drive application and installation.

ADMF 202 Mechatronics III 3 Credits
Prerequisites: ADMF 122. Introduces the common types of Programmable Logic Controllers (PLCs) and electric motor drive systems used in advanced manufacturing. Topics covered will include PLC theory, PLC installation, control wiring, ladder diagrams, AC & DC motor drive application and installation.

ADMF 205 Sensors in Manufacturing 3 Credits
Prerequisite: ADMF 113. Introduces the basic principles and practices of sensor technology used in advanced manufacturing. This course will prepare students to use commonly used sensor technology from simple switches to complex modern sensors. Students will be required to match appropriate sensor technology with specific manufacturing processes.

ADMF 206 Automation & Robotics in Manufacturing II 3 Credits
Prerequisite: ADMF 116 and MATH 111 or MATH 035 or MATH 023. Continues to develop the theory, operation, and programming of automated manufacturing systems. This course will focus on three main types of manufacturing automation including: Programmable Logic Controllers (PLC), Computer Numerically Controlled Machines (CNC), and Robotics. Students will be required to integrate and troubleshoot computer controlled machines in a manner that represents actual advanced manufacturing production processes in a project oriented learning environment.

ADMF 211 Quality Systems in Manufacturing 3 Credits
Prerequisite: MATH 111 or MATH 035 or MATH 043. Covers current quality improvement concepts and techniques in industry with emphasis on modern manufacturing requirements. This course introduces the fundamental tools of Statistical Process Control (SPC) as they are used in industry to reduce costs, identify root cause, and increase productivity at a predictable quality level. Applied principles and techniques of total quality systems will be utilized to ensure correct decision, measurement, analysis, and improvement of common manufacturing problems. Areas of study include: basic statistical and probability theory, sampling techniques, process control charts, nature of variation, histograms, attributes and variable charts.

ADMF 216 Projects in Advanced Manufacturing 3 Credits
Prerequisite: ADMF 206. Requires the student of advanced manufacturing to formally display their knowledge and implementation of a broad range of skills from the advanced manufacturing curriculum. Specifically, this course will require students, working in manufacturing teams, to develop a manufacturing line for the production of a product. Students will enhance manufacturing processes by implementing concepts of lean manufacturing and employing quality concepts to ensure high production rates.

ADMF 222 Mechatronics IV 3 Credits
Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Introduces the basic principles and practices of fluid power technology used in advanced manufacturing and mechatronic systems. This course will examine fluid power components and fluid power circuit design.

ADMF 280 Manufacturing COOP/Internship 3 Credits
Prerequisite: Program Chair Approval. Gives students the opportunity to work in a manufacturing environment that is specifically related to their career objectives. Students gain on-the-job experience while earning credit toward an associate degree. Students already working may apply to use that current job experience to meet course requirements. Students will be required to establish learning outcomes and prepare job reports in conjunction with the employer.

AGRI 100 Introduction to Agriculture 2 Credits
Prerequisite: None. Presents an overview of agriculture emphasizing the basic concepts of crop and animal growth and production. In addition, the course provides a survey of the diversity of agricultural industries.

AGRI 101 Agricultural Data Management 3 Credits
Prerequisite: None. Principles of collecting, managing, and retrieving financial, physical, and spatial data from farm operations to support the farm's decision-making and reporting. Emphasizes use of financial, statistical, and logical spreadsheet functions, GIS systems, record-keeping for fertilizer and pesticide usage and regulation, and specialized software applications, including integration of information from various sources and packages.

AGRI 102 Agricultural Business and Farm Management 3 Credits
Prerequisites: None. Deals with vast and complex business of agriculture; emphasizes modern business and farm production methods along with current management and administrative strategies needed for success in an agricultural business.

AGRI 110 Introductory Agricultural Business and Economics 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or higher in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Examines the role and characteristics of farm and off-farm agricultural business in our economy; introductory economic and business principles involved in successful organization, operation, and management.
AGR111 Introduction to Crop Production 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or higher in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Introduces and examines fundamental principles of crop production and distribution. Emphasis is placed on applying technological advances in agronomy to active crop-production situations, including basic soils, agricultural meteorology, and crop physiology and breeding.

AGR112 Fundamentals of Horticulture 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or higher in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Biology and technology involved in the production, storage, processing, and marketing of horticultural plants and products. Laboratories include experiments demonstrating both the theoretical and practical aspects of horticultural plant growth and development.

AGR113 Introduction to Animal Science 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or higher in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Examines the importance of livestock in the field of agriculture, and the place of meats and other animal products in the human diet.

AGR114 Introduction to Agricultural Systems 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or higher in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. An introduction to the Agricultural Systems Management technical curriculum. Basic mathematical problem solving techniques; power generation, transfer, and utilization; basic principles of agricultural operations management; soil and water management; crop handling and conditioning; and heat transfer.

AGR115 Natural Resources Management 3 Credits
Prerequisites: None. Problems associated with the use/misuse of our natural resources and current management practices associated with the conservation of natural resources.

AGR116 Survey of Horticulture 3 Credits
Prerequisites: None. Presents an overview of horticulture emphasizing the basic concepts of ornamental plant ID, production, and use in the landscape.

AGR117 Soil Science 3 Credits
Prerequisite: None. Classification and characterization of soils and differences between soils, including physical, chemical, and biological properties. Relation of soils to land use and tillage, erosion, drainage, moisture supply and aeration practices. Relationship of soil properties to plant nutrition and to fertilizer chemistry, use, and management.

AGR118 Soil Evaluation 1 Credit
Prerequisites: AGR117. This course teaches how to evaluate soils in the field and lab based on soil texture, color, structure, parent material, consistency, runoff, and drainage. After characterizing the soil, the student interprets the data to determine the suitability of the soil for agricultural and engineering purposes.

AGR141 Evaluation of Midwestern Soils 1 Credit
Prerequisites: None. This course teaches how to evaluate soils of the Midwestern United States based on soil texture, color, structure, parent material, consistency, runoff, and drainage. After characterizing the soil, the student interprets the data to determine the suitability of the soil for agricultural and engineering purposes.

AGR142 Evaluation of Eastern Soils 1 Credit
Prerequisites: None. This course teaches how to evaluate soils of the Eastern United States based on soil texture, color, structure, parent material, consistency, runoff, and drainage. After characterizing the soil, the student interprets the data to determine the suitability of the soil for agricultural and engineering purposes.

AGR143 Evaluation of Southern Soils 1 Credit
Prerequisites: None. This course teaches how to evaluate soils of the Southern United States based on soil texture, color, structure, parent material, consistency, runoff, and drainage. After characterizing the soil, the student interprets the data to determine the suitability of the soil for agricultural and engineering purposes.

AGR144 Evaluation of Western Soils 1 Credit
Prerequisites: None. This course teaches how to evaluate soils of the Western United States based on soil texture, color, structure, parent material, consistency, runoff, and drainage. After characterizing the soil, the student interprets the data to determine the suitability of the soil for agricultural and engineering purposes.

AGR151 Meat Evaluation I 2 Credits
Prerequisites: None. Principles of livestock evaluation, calculation of meat animal composition, and determination of marketing of various livestock species for branded and commodity trade.

AGR152 Meat Evaluation II 2 Credits
Prerequisites: None. Principles of livestock evaluation, calculation of meat animal composition, and determination of marketing of various livestock species for branded and commodity trade.

AGR153 Livestock Selection I 2 Credits
Prerequisites: None. Prepares students to participate in livestock judging competitions. Consists of lecture and labs that will develop student’s potential in selection of beef, swine, and sheep through login with oral reasoning.

AGR154 Livestock Selection II 2 Credits
Prerequisites: None. Prepares students to participate in livestock judging competitions. This course is designed to teach livestock visual evaluation and interpret production data for different management scenarios. In addition, students will enhance their logical thinking, reasoning, and communication skills.

AGR192 International Agricultural Field Experience 3 Credits
Prerequisites: None. Role of agriculture in international food production, international trade, governmental policy, and cultural and economic diversity influence on agriculture; requires a supervised international field experience.

AGR193 United States Agricultural Field Experience 3 Credits
Prerequisites: None. Role of agriculture in U.S. food production, national trade, governmental policy, and cultural and economic diversity influence on agriculture; requires a supervised national field experience.

AGR200 Precision Farming Technology 3 Credits
Prerequisite: AGR100. Technology and applications of electronics for precision agriculture. Characteristics of personal computer hardware, electronic sensors, monitors, machine controllers, environmental monitors, and global positioning systems. Production management information systems; processing and marketing information systems; and yield mapping, geographic information system data handling, and software options.

AGR201 Communicating Across Cultures 3 Credits
Prerequisites: AGR110. Presents an academic overview of the field of multicultural education as it relates to the agriculture industry. The course will explore the great variety of differences that exist among people living in the multicultural, multiethnic, multinational United States. Differences to be studied include race/ethnicity, gender identity, age, social class, disability, learning styles, and spiritual orientation. Issues of poverty, language, and social justice will also be examined.

AGR202 Animal Production Facilities 3 Credits
Prerequisite: AGR100. Principles of choosing, operating, and maintaining machines and equipment used in farm animal production. Emphasizes basics of electrical and hydraulic machines and common operating techniques and practices. Includes use of computer software and hardware to manage feed, health maintenance, and waste management. Special focus on operator and animal safety and environmental quality maintenance.
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<tr>
<td>AGRI 203</td>
<td>Livestock Selection and Evaluation</td>
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<tr>
<td>AGRI 204</td>
<td>Agriculture Salesmanship</td>
<td>3</td>
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<tr>
<td>AGRI 205</td>
<td>Animal Nutrition</td>
<td>3</td>
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<td>AGRI 206</td>
<td>Animal Anatomy and Physiology</td>
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<td>AGRI 207</td>
<td>Marketing Agricultural Products</td>
<td>3</td>
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<td>AGRI 208</td>
<td>Agriculture Financial Records</td>
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<td>AGRI 210</td>
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<tr>
<td>AGRI 220</td>
<td>Agriculture Applications of Geographic Information Systems</td>
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**Prerequisites:**
- AGRI 100, Principles of selection and evaluation of breeding, and marketing livestock: emphasis on modern breeds and types of livestock. Performance programs available for producers to improve livestock to meet economic, market, and consumer needs. Students participate in field trips and may participate in intercollege livestock judging contests to gain skill in livestock selection/evaluation.

- AGRI 203: Prerequisite: AGRI 100. Principles of selection and evaluation of breeding, and marketing livestock: emphasis on modern breeds and types of livestock. Performance programs available for producers to improve livestock to meet economic, market, and consumer needs. Students participate in field trips and may participate in intercollege livestock judging contests to gain skill in livestock selection/evaluation.

- AGRI 204: Prerequisite: AGRI 100. Role, dynamics, and principles of sales communications as related to food and agriculture; methods for analyzing, setting objectives, planning, conducting, and evaluating sales communications efforts; sales presentations.

- AGRI 205: Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or higher in ENG 025 and ENG 032 and MATH 015 or MATH 023. Basic principles of managing animal diets to maximize health and nutrition, or prevent disease in animals and humans. Includes nutrient classes and functions, digestive processes, symptoms of nutrient deficiency, characterization of feed products, diet formulation, and management. Familiarizes students with disease processes and mechanisms and recognition and management of insects of animals.

- AGRI 206: Prerequisite: AGRI 100. Principles of organ and tissue structure, physiology, function, regulation, and integration of domestic farm animals. Examines mechanisms and processes of growth and development, reproduction, and lactation, and effects of environmental conditions. Includes basic genetic principles and theory, and their applications to physiological development and reproduction.

- AGRI 207: Prerequisite: AGRI 100. Includes principles of demand, supply, and price determination in agricultural markets. Examines effects of costs and margins, market structure, marketing channels and systems, horizontal and vertical integration, government regulations, government programs, and cooperatives in farm marketing decisions. Also examines the difference between marketing commodities and differentiated products.

- AGRI 208: Prerequisite: AGRI 100. Application of principles of financial and cost accounting, finance, and management to recording the farm's input, cost, production, price, and revenue information. Use and organization of financial data to assist farm management and decision-making, such as financial analysis, budgeting, and strategic decisions for evaluating and improving operations, credit needs, and tax liabilities.

- AGRI 209: Prerequisite: AGRI 100. Fundamentals of the mechanics of commodity marketing, including futures and options, for both grain and livestock. Examines how these markets connect to the cash market and influence risk management and pricing of commodities. Fundamentals of the cash market pricing alternatives available and development of marketing plans.

- AGRI 210: Prerequisite: AGRI 110. Examines the management of non-farm, agricultural related businesses. Topics include tools for management decision making, formal and informal aspects of business organization, the relationship of the business owner to the financial management techniques. Incorporates case studies and computer simulation games.

- AGRI 211: Prerequisite: AGRI 100. The principles, skills, and practices of handling swine and managing commercial swine production and production of pork products. Includes breeding, selection, feeding, and health of swine. Provides concepts of animal and animal-human interactions and animal behavior and practices to ensure animal and human well-being.

- AGRI 212: Prerequisite: AGRI 100. Principles of using, storing, controlling and disposing of agricultural waste, chemicals, and other hazardous materials, and using and maintaining application equipment, to maintain human and animal health and environmental quality. Includes basis for and knowledge of state and federal regulatory requirements. May include instruction for certification in hazardous materials management or private pesticide applicator licensing.

- AGRI 213: Prerequisite: AGRI 100. An introduction to power generation and transfer in mechanical and fluid power systems. Includes combustion engines, fuels, and cycles; clutches, mechanical transmissions, automatic transmissions, hydraulic transmissions, and final drives discussed. Principles of hydraulics, fluids, cylinders, pumps, motors, valves, hoses, filters, and accumulators are studied.

- AGRI 214: Prerequisite: AGRI 100. Successful and efficient reproduction is an economically important aspect of modern animal agriculture. Course emphasizes the anatomy of male and female reproductive organs, the effect of hormones on reproduction, the effect of environmental factors on reproduction, and the ways to maximize reproductive efficiency. Includes basics of genetics, but emphasizes the practical application of reproductive physiology.

- AGRI 215: Prerequisite: AGRI 100. Identification and control of the economically important diseases and insects that impact agricultural production in the U.S. Emphasis is placed on disease pathogens and insects that affect grain and forage production in the Midwest. Current technologies in chemical control as well as integrated pest management will be explored with emphasis on environmental and personal safety.

- AGRI 216: Prerequisite: AGRI 100. Use of fertilizers for peak production at optimum cost; evaluation and comparison of different forms of macronutrients, and the manufacture, handling, and application of plant and soil chemistry.

- AGRI 217: Prerequisite: AGRI 100. Identification and control of the economically important broadleaf and grass weeds that impact agricultural production in the U.S. Identification of weeds, seedlings, and full-grown plants is addressed. Weed control programs are examined in the context of herbicide chemistry, timing, and economics. Emphasis is placed on pesticide formulations, application methods, rate calibration, environmental concerns, safety, and regulations. Students will participate in training for and receive a Certified Pesticide Applicators Permit as part of the course requirements.

- AGRI 218: Prerequisite: AGRI 100. Principles of choosing, operating, and maintaining machines and equipment used in production of field crops. Emphasizes basic electrical and hydraulic machines and common operating techniques and practices. Includes use of computer software and hardware and GIS to manage planting, tilling, and fertilizer and pesticide applications. Special focus on operator safety and environmental quality maintenance.

- AGRI 219: Prerequisite: AGRI 100. Principles of choosing, operating, and maintaining machines and equipment used in production of field crops. Emphasizes basic electrical and hydraulic machines and common operating techniques and practices. Includes use of computer software and hardware and GIS to manage planting, tilling, and fertilizer and pesticide applications. Special focus on operator safety and environmental quality maintenance.

- AGRI 220: Prerequisite: AGRI 100. Principles of agronomy related to nutrient management, soil management, water management, integrated pest management and cropping systems. Course prepares students to take the certified crop advisor exam.

- AGRI 222: Prerequisite: AGRI 100. Fundamental processes of geographic information systems (GIS) with application to agriculture. File formats, database management, spatial analysis, and manipulation of data. Georeferenced data from mapping and yield monitoring.
AGRI 223 Plant Pest ID and Control 3 Credits
Prerequisites: AGRI 100. Identification and control of weeds, insects, and diseases. Control methods include prevention, biological control, resistant varieties, and pesticides. Pesticide terminology, formulation, calibration, environmental concerns, safe handling, and laws and regulations concerning pesticides.

AGRI 231 Equine Reproduction 3 Credits
Prerequisites: AGRI 100. Students will learn firsthand what it takes to breed equines. This hands-on, practical approach is a unique opportunity for students looking for a career in the equine industry.

AGRI 232 Equine Management 3 Credits
Prerequisites: AGRI 100. Compare and contrast draft horses to light horses. Stable and pasture management, conformation, and safety.

AGRI 271 Agriculture Structures 3 Credits
Prerequisites: AGRI 100. Construction process and construction methods of typical agriculture buildings. Course will include extensive hands-on laboratory involving the construction of an agriculture structure.

AGRI 280 Internship 1-5 Credits
Prerequisite: AGRI 100. Placement in agricultural business for 80-400 hours of work in career exploration, developing skills requirements, and occupational opportunities. Dual supervision by college staff and cooperating businesses.

AGRI 290 Agriculture Seminar 1 Credit
Prerequisites: Program Advisor Approval. Seminar designed to assist students dealing with the management and day-to-day decision making involved in operation of an agricultural/agri-business firm.

AMSL 101 American Sign Language I 3 Credits
Prerequisite: None. American Sign Language I is an introduction to ASL as it is used within the Deaf culture. Instruction in the basic structure of the language and development of its use. Skill development practice. Introduction to the deaf perspective on the establishment of deaf communities and ASL.

AMSL 102 American Sign Language II 3 Credits
Prerequisite: AMSL 101. American Sign Language II is designed to provide a continuation of the introductory course. Students will increase knowledge of the deaf community, culture, and deaf educational hearing world. The deaf perspective on traditional employment of deaf people in a hearing society will be explored. In language development, complex grammar functions, vocabulary, and skill development are incorporated into the use of sign production. The course will provide an opportunity for students to improve and enhance their ability to communicate in American Sign Language.

ANTH 154 Cultural Anthropology 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment of earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. The scientific study of human culture. Variations in patterns of human behavior are holistically examined in their relationship to such factors as biological evolution, socialization, kinship, economy, religion, education, personality, art, music, dance, and cultural change.

ANTH 254 Introduction to Archaeology 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. The scientific study of the material artifacts of human cultural remains. Provides insight into the earliest patterns of human behavior and its subsequent evolution into more complex forms. Acquaints the student with archaeological methods and with major findings of the archaeological record from selected culture areas.

APHY 067 Introduction to Anatomy and Physiology 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 031 and MATH 044 or MATH 015. Introduces basic concepts and terminology used in Anatomy and Physiology. Prepares entering students who took no high school life science or took it several years ago for APHY 101 and APHY 102 (or APHY 203 and 204). Provides a general introduction to chemistry, cells, tissues, body systems, and basic physiological processes.

APHY 101 Anatomy and Physiology I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 050 or MATH 015 or MATH 023. Demonstrates the fundamental understanding of the biological organization and function of the human body. Introduces students to the cells, tissues, tissues, organs, and covers tissues of the integument, skeletal, muscular, and nervous systems as an integrated unit. Includes lab.

APHY 102 Anatomy and Physiology II 3 Credits
Prerequisites: APHY 101. Continues the study of the interrelationships of the systems of the human body. Introduces students to the study of the endocrine, cardiovascular, lymphatic, respiratory, digestive, immune and reproductive systems. Includes lab.

APHY 201 Advanced Human Physiology 4 Credits
Prerequisites: Successful completion of APHY 101 and APHY 102, or equivalent. Provides a study of human physiology for students entering health-oriented fields. Emphasizes the study of the function of cells, the nervous, muscular, circulatory, respiratory, urinary, digestive and endocrine systems, and their homeostatic mechanisms and system interaction. Focuses laboratory exercises on clinically relevant measurement of human function. Includes lab.

APHY 203 Human Anatomy and Physiology I 5 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Provides the comprehensive study of the interrelationship between anatomy and physiology from chemical to cellular to organ interactions. Provides an in-depth study of each system of the body from a point of view of structure and function. Includes lab.

APHY 204 Human Anatomy and Physiology II 5 Credits
Prerequisites: APHY 203 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Provides the remaining comprehensive study of the interrelationship between anatomy and physiology from chemical to cellular to organ interactions. Provides an in-depth study of each system of the body from a point of view of structure as well as function: endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems. Includes lab.

ARTH 101 Survey of Art and Culture I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Surveys painting, sculpture, and architectural styles from ancient cultures to the proto-Renaissance era. Emphasizes the historical context of art movements as well as analysis of the work of individual artists.

ARTH 102 Survey of Art and Culture II 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Surveys painting, sculpture, and architectural styles from the Renaissance to the present. Emphasizes the historical context of art movements as well as analysis of the work of individual artists.

ARTH 110 Art Appreciation 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An introductory course in art which explores the creative processes of mankind, its usage of specific and contemporary media for communication and the study of periods and styles in art as they relate to the human condition. The course will explore the nature of art, the evaluation of art, and the processes and materials of art. The student will examine the formal elements of design and look at a wide variety of both traditional and contemporary artworks and will learn about the processes and tools involved in their creation.
### ARTS 100 Life and Object Drawing I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. This introductory course will result in the advancement of basic drawing skills utilizing the human figure, natural and manufactured objects. Basic techniques and creative processes will be explored through expressive use and exploration of a variety of materials and techniques. Emphasis will be placed on developing a higher level of quality draftsmanship with a focus on proportion and structure.

### ARTS 101 Life and Object Drawing II 3 Credits
Prerequisites: ARTS 100. Rendering abilities will continue to advance with drawing techniques utilizing the human figure, natural and manufactured objects, specifically from life (not photographs). More advanced techniques and creative processes will be explored through expressive use and exploration of a variety of materials and techniques. Emphasis will be placed on developing a higher level of quality draftsmanship with a focus on proportion and structure.

### ARTS 102 Color and Design Theory I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. A critical thinking course that delves into the thought processes and manual skills needed in design and its application in the realm of two-dimensional fine arts. Intermediate to advanced design and color theory will be addressed through the manipulation of imagery in two-dimensional media. Critical thinking, problem-solving and manual techniques will be emphasized equally.

### ARTS 103 Three-Dimensional Design 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An introductory course into the thought processes and manual skills needed in three-dimensional design. Basic techniques and creative processes will be explored through expressive use and exploration of a variety of materials and techniques. Critical thinking, problem-solving and manual techniques will be emphasized equally.

### ARTS 104 Contemporary Art History 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. This course chronologically surveys painting, sculpture, architectural styles and the minor arts for contemporary art. Emphasis is on the historical context of art movements as well as analysis of the work of individual artists. This course will provide the basic knowledge of art with grounding in technique and vocabulary along with dealing with current issues, multicultural dimensions of art and making a connection between art history and art making. Contemporary art has a vocabulary all of its own and this course provides the introductory tools to appreciate all art forms over the last three decades. Major movements will be introduced with characteristic works including performance, painting, sculpture, printmaking, environmental, photography and computer graphics.

### ARTS 105 Foundation I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. This course introduces students to the fundamentals of art and design through a survey of art processes and techniques. Exposing students to broad subject matter and using four or five material specific exercises to emphasize additive and subtractive processes.

### ARTS 106 Foundation II 3 Credits
Prerequisites: ARTS 105. Continues to expose students to broad subject matter by utilizing four or five material specific exercises to emphasize additive and subtractive processes at an advanced level. Students will also be exposed to the variety of artistic possibilities through multiple art processes and techniques by working with the instructor and visiting artists.

### ARTS 200 Intermediate Drawing I 3 Credits
Prerequisites: ARTS 101. This intermediate course will continue the advancement of drawing skills utilizing the human figure, natural and manufactured objects. There will be a thorough investigation of nature and the human figure through drawing. Techniques and creative processes will be explored through expressive use and exploration of a variety of materials and techniques. Emphasis will be placed on quality draftsmanship with a focus on structure, line, gesture, and movement.

### ARTS 201 Intermediate Drawing II 3 Credits
Prerequisites: ARTS 200. This intermediate course will continue the advancement of drawing skills utilizing the human figure, natural and manufactured objects. There will be a thorough investigation of nature and the human figure through drawing. Techniques and creative processes will be explored through expressive use and exploration of a variety of materials and techniques. Emphasis will be placed on quality draftsmanship with a focus on structure, line, gesture, and movement.

### ARTS 202 Color and Design Theory II 3 Credits
Prerequisites: ARTS 102. A critical thinking course that delves into the thought processes and manual skills needed in design and its application in the realm of two-dimensional fine arts. Intermediate to advanced design and color theory will be addressed through the manipulation of imagery in two-dimensional media. Critical thinking, problem-solving and manual techniques will be emphasized equally.

### ARTS 204 Women in Art 3 Credits
Prerequisites: ARTS 101 or ARTS 102 or ARTS 104. This course will survey painting, sculpture, and architecturally styles created by women from medieval cultures to the present. Contemporary approaches to women’s art will also be explored and emphasized.

### ARTS 211 Sculpture I 3 Credits
Prerequisites: ARTS 103. This is a basic course in the consideration of three-dimensional form in sculptural concept. Students will be exposed to various related materials, techniques, and processes. Emphasis will be on composition, positive and negative space and craft of material technique.

### ARTS 212 Sculpture II 3 Credits
Prerequisites: ARTS 211. This is a continuation of Sculpture I resulting in intermediate use of three-dimensional design, skills, applications and materials. Emphasis will be on intermediate techniques and advancing compositional skill.

### ARTS 216 Printmaking I: Intaglio 3 Credits
Prerequisites: ARTS 100. Beginning course in printmaking, which introduces students to a variety of traditional techniques. Students are instructed in basic printing processes and in use of the presses. Emphasis will be on composition, craft, technical processes and translation of line to print.

### ARTS 220 Printmaking II: Serigraphy 3 Credits
Prerequisites: ARTS 100. Beginning course in printmaking, which introduces students to the traditional techniques of serigraphy or silkscreen printmaking. Students are instructed in basic printing processes and in use of the screens. Emphasis will be on composition, craft, technical processes and translation of multiple types of content to print.

### ARTS 225 Printmaking III: Relief and Monotype 3 Credits
Prerequisites: ARTS 100. Beginning course in printmaking, which introduces students to the traditional techniques of relief, collagraph and monotype. Students are instructed in basic printing processes and in use of the presses. Emphasis is on composition, craft, technical processes and translation of multiple types of content to print.

### ARTS 226 The Art of The Book 3 Credits
Prerequisites: ARTS 100. Introduces the techniques, processes and aesthetic concerns of book arts as a studio art medium. Students will complete a number of original works using folding, cutting, and traditional fabrication as well as adhesive and non-adhesive books with sewn spines. Technique, concept and aesthetics will be discussed and used as a foundation for composition, execution and formal analysis in critiques.

### ARTS 227 Papermaking 3 Credits
Prerequisites: ARTS 100. Introduces the techniques, processes and aesthetic concerns of papermaking as a studio art medium. Students will complete a number of original works using handmade pulp as well as
paper sheets, forms, paintings and other techniques. Technique, concept and aesthetics will be discussed and used as a foundation for composition, execution and formal analysis in critiques.

**ARTS 231 Painting I** 3 Credits
Prerequisites: ARTS 100 or VISC 111 and ARTS 102 or VISC 101. An introductory course aimed at the development of painting skills, techniques, and aesthetic sensibilities. Explores and experiments with basic painting mediums, which may include: watercolors, acrylics, and oils in varying degrees. Builds visual thinking skills and methods for channeling creative energies that enable a lifetime of personal artistic expression.

**ARTS 232 Painting II** 3 Credits
Prerequisites: ARTS 231. An extension of the skills and concepts introduced in Painting I. Emphasis is on individual experimentation and the development of more advanced critical and technical skills in the discipline. Course continues to build visual thinking skills and methods for channeling creative energies that further enable a lifetime of personal artistic expression.

**ARTS 241 Ceramics: Handbuilding I** 3 Credits
Prerequisite: ARTS 103. This course is designed to introduce the techniques, processes and aesthetic concerns of ceramics as a studio art medium. Students will complete a number of original works using basic hand building techniques, as well as earthenware glazing and firing processes. Technique, concept and aesthetics will be discussed and used as a foundation for composition, execution and formal analysis in critiques.

**ARTS 250 Fine Arts Portfolio** 3 Credits
Prerequisites: Program Chair Approval. Final course of program before graduation that prepares the student for transfer to another University environment and to begin exhibiting and working professionally. Course covers artist resume development, artist statement, artwork presentation: digital and in-hand, along with some of the business aspects of being an artist. A polished presentation with portfolio is the final for this course.

**ASTR 101 Solar System Astronomy** TransferIN 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Survey of the history of astronomy, astronomical cycles and phenomena, astronomical instruments, formation and evolution of the planets and their satellites, comparative planetology, asteroids, comets, meteors, the sun, origin of the solar system and its place in the galaxy and the universe.

**AUBR 101 Body Repair I** 3 Credits
Prerequisites: None. Corequisite: AUBR 125. Examines characteristics of body metals and includes installation of moldings, ornaments, and fasteners with emphasis on sheet metal analysis and safety.

**AUBR 103 Automotive Paint Fundamentals** 3 Credits
Prerequisites: None. Introduces auto paint considerations with emphasis on the handling of materials and equipment in modern automotive technologies.

**AUBR 104 Collision Damage Analysis and Repair** 3 Credits
Prerequisites: None. Provides instruction in analyzing extensive body damage and determining the tools and procedures needed to replace panels.

**AUBR 105 Conventional Frame Diagnosis and Correction** 3 Credits
Prerequisites: AUBR 125 or Program Advisor Approval. Covers the use of tools, frame machines and equipment for frame and chassis repair. Includes study of terms pertaining to front suspension and rear axle. Describes uses of frame gauges and other measuring devices.

**AUBR 110 Auto Body Power Tools** 3 Credits
Prerequisites: None. Covers diagnosis of problems associated with the use of power tools in auto body work.

**AUBR 111 Auto Body Hydraulic Tools** 3 Credits
Prerequisites: None. Provides instruction in the selection, use and maintenance of hydraulic tools for auto body repair.

**AUBR 114 Collision Damage Lab** 1 Credit
Prerequisites: AUBR 104. Provides opportunities to develop skills and knowledge in the area of collision damage analysis and repair.

**AUBR 115 Auto Body Circuits** 3 Credits
Prerequisites: None. Includes fundamentals of electrical theory, automotive components and circuits, and troubleshooting techniques. Emphasizes battery construction, function and operation.

**AUBR 117 Auto Paint Lab** 1 Credit
Prerequisites: AUBR 103 and AUBR 107. Develops auto-painting skills with emphasis on materials and equipment handling.

**AUBR 121 Unibody Repair Lab** 1 Credit
Prerequisites: None. Develops skills and knowledge in the area of unibody structural analysis and repairs.

**AUBR 122 Conventional Frame and Unibody Structural Analysis** 3 Credits
Prerequisites: None. Includes the use of tools, frame machines and equipment for frame and chassis repair. Includes study of terms pertaining to front suspension and rear axle. Describes the uses of frame gauges, tram identification and other measuring and fixturing systems; straightening systems and techniques; mechanical component service and knowledge of suspension and steering systems on front wheel drive unibody vehicles.

**AUBR 125 Automotive Body Welding** 3 Credits
Prerequisites: None. Provides basic skills and fundamental knowledge in oxy-fuel welding, cutting, brazing and plasma cutting, gas metal arc welding, squeeze type resistance welding, exterior panel welding and I-CAR welding test preparation. This course is designed for auto service and body technicians. Emphasizes safe practices in ox-fuel and specific welding processes in the automotive body repair field.

**AUBR 206 Automotive Body Welding** 3 Credits
Prerequisites: AUBR 101. Introduces fundamentals of using hand and power tools in the repair of minor collision damage, with emphasis on safety.

**AUBR 207 Automotive Painting Technology** 3 Credits
Prerequisites: AUBR 103 and Program Advisor Approval. Provides instruction on the total refinishing of an automobile with emphasis on advanced and specialty painting techniques.

**AUBR 208 Unibody Structural Analysis** 3 Credits and Repair
Prerequisites: None. Covers unibody repair, identification and analysis of damage, measuring and fixing systems, straightening systems and techniques, mechanical component service and knowledge of suspension and steering systems on front-wheel-drive unibody vehicles.

**AUBR 209 Collision Damage Appraising** 3 Credits
Prerequisites: None. Provides instruction in analyzing extensive body damage and determining the tools and procedures needed to replace panels.

**AUBR 220 Fiberglass Plastic Repair** 3 Credits
Prerequisites: None. Introduces types of fiberglass and plastic materials used in auto body repair. Covers both interior and exterior applications.

**AUBR 227 Custom Paint Applications** 3 Credits
Prerequisite: AUBR 103. Provides instruction and interaction on application of custom finishes to metal and composite materials.

**AUTC 101 Steering and Suspension** 3 Credits
Prerequisites: None. The objective of this course will be to study different steering and suspension systems used on vehicles. Students will study steering and suspension components, power steering units, principles of four-wheel alignment, tire repair and wheel balancing. The course will emphasize professional methods of diagnosis and repair for related components.

**AUTC 102 Two and Four Wheel Alignment** 3 Credits
Prerequisites: None. Covers the principles of two- and four-wheel alignment and wheel balance. Emphasizes practical work experience in the lab covering all the alignment angles.
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<th>Course Code</th>
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<td>AUTC 106</td>
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<td>AUTC 107</td>
<td>Engine Principles and Vehicle Service</td>
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<td>AUTC 108</td>
<td>Biomass, Biogas, Micro-turbine Technology</td>
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<td>AUTC 113</td>
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<td>AUTC 114</td>
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<td>AUTC 119</td>
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<td>AUTC 150</td>
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<td>AUTC 201</td>
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<td>AUTC 209</td>
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<td>AUTC 210</td>
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<tr>
<td>AUTC 211</td>
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Prerequisites: None. Covers basic principles and history of alternative energy sources. Industry and government status of geothermal, wind, solar, biomass, fuel cells and other energy sources will be highlighted, as well as a thorough discussion of Smart Grid Technology. Alternative and traditional energies will be defined and compared in terms of today's use. This course will provide first responder for hybrid and electric vehicle safety training and will discuss evolving energy careers.

Prerequisites: AUTC 107. First in a series of two that focuses on the use of liquefied propane gas as an alternative fuel, and how it's used in material handling, automobiles and light duty trucks. Additionally, the theory of operation, installation, diagnosis and current safety regulations of the use of LPG will be covered in this class.

Prerequisites: AUTC 107. Introduces students to the role, function and application of compressed natural gas (CNG) as an alternative fuel for today's internal combustion engine. Course prepares students to take the ASE F1 exam.

Prerequisites: None. This course introduces engine dynamics, theory of engine operation and characteristics of engine design. Studies will include component removal and replacement, visual inspection, precision measuring, gaskets, lubricants, sealants, and coolants. Underhood maintenance and service will also be covered.

Prerequisites: Demonstrated competency through appropriate assessment or passing a grade of "C" or better in ENGL 025 and ENGL 032. Focuses on the release of chemical energy by accelerating the naturally occurring carbon dioxide cycle and the use of this energy to power engines and generators. Natural fuels, fuels made from plant materials and garbage will be discussed. Engine efficiency and its impact on lower emissions will be discussed.

Prerequisites: None. The first in a series of three courses that covers the operating systems of an internal combustion engine. The basic theory and operation of ignition, fuel, emission, and mechanical systems will be presented. Basic test procedures will be introduced. Computer engine system basics will be explained. Basic service and replacement procedures and techniques will also be covered.

Prerequisites: AUTC 104. Second course in the series covering liquid propane gas. LPG II continues with in-depth topics in maintenance, diagnosis and repair as well as conversions and installation using the liquid propane system.

Prerequisites: None. This first of three electrical classes introduces the fundamentals of electricity and automotive electronics. Digital multi-meters and circuit troubleshooting is covered. Emphasis is placed on understanding and utilizing electrical diagrams. Batteries, starting and charging systems are covered.

Prerequisites: AUTC 106. Applies skills gained from AUTC 106 and expands them in theory and application. The course focuses on the advanced maintenance, diagnosis and repair, as well as conversion and installation of the compressed natural gas fuel system.

Prerequisites: None. This introductory course teaches theory, service and repair of automotive braking systems and their components. Emphasis is given to hydraulic theory, repair, and service of system components, including anti-lock and traction control systems.

Prerequisites: AUTC 113 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 040. This second in a series of three courses will study electrical circuit theory and diagnostic procedures. The topics for this course include principles of operation and diagnostics for the various automotive electrical and electronic systems. This course introduces body controllers and multiplexing.

Prerequisites: None. This course covers theory, diagnosis, and overhaul procedures related to manual transmission/transaxles, clutches, transfer cases, and differential assemblies.

Prerequisites: None. A study of precision tools, equipment, and procedures needed to repair today's automotive engines. Focus is placed on proper repair, assembly, and installation techniques applicable to the modern engine.

Prerequisites: None. A study of automatic transmission theory of operation, diagnosis, testing, and repair procedures. Theory and diagnosis of computer-controlled transmissions will also be covered.

Prerequisites: None. A study of driveline theory and in-car service procedures. Theory and overhaul procedures related to the drive-shaft and axle assemblies for front and rear wheel drive vehicles included. Removal and installation of transmissions and transaxles covered. Transmission/driveline diagnosis and in car repair included.

Prerequisites: None. Provides an overview of the various racing/motor sports venues in the U.S. Students will gain an understanding of various racing venues and their operations. Emphasis will be placed on professional level racing, although sportman and semi-professional venues will also be discussed. Students will learn about the various careers available throughout the motor sports industry.

Prerequisites: None. Covers disassembly, inspection, measuring, cleaning, machine repair and proper assembly techniques applicable to small gas engine overhaul. Includes overhaul of carburetor and ignition systems as well as maintenance procedures on two-cycle and four-cycle engines.

Prerequisites: None. Operation of the diesel engine and the differences between a diesel and gas engine. Includes instruction on shop equipment, fuels, oils, seals, bearings, lubrication and cooling system.

Prerequisites: AUTC 113. This course covers air conditioning and heating systems used on modern vehicles. Emphasis is given to the operation and theory of the air conditioning and its components. Vacuum and electronic control circuits are included. Federal regulations for handling and recycling of all refrigerants will be stressed. Automatic climate control systems are also covered.

Prerequisites: AUTC 109. This second in a series of three classes covers the diagnosis and repair of ignition, fuel, emission, and computer systems. Extensive coverage is given to manufacturer specific computer engine control and fuel injection systems. Topics will include OBD I, OBD II, and future on-board diagnostic systems.

Prerequisites: AUTC 103 and AUTC 123. This course provides an overview of the fundamentals of operation, diagnosis and repairing of electric and gas-electric hybrid vehicles. Topics to be covered will include batteries, fuel cells, electric motors, controllers, inverters and auxiliary accessories utilized in the Electric Vehicle and Hybrid Electric Vehicle platforms.

Prerequisites: AUTC 103, AUTC 104, and AUTC 106. Focuses on shop safety, gaseous fuel handling, federal fuel standards and industry
standards related to the conversion and installation processes of alternative fuel system components/systems to current vehicles.

AUTC 219 Engine Performance III 3 Credits
Prerequisites: AUTC 209. This third in a series of three courses covers advanced concepts in the diagnosis and repair of ignition, fuel, emission, and computer systems. Coverage of manufacturer specific computer engine control and fuel injection systems will be stressed. Federal and state emission requirements will be covered with a focus on 5-gas exhaust analysis. Hybrid and alternative fuel technology will also be covered.

AUTC 221 Vehicle Diagnosis and Service 4 Credits
Prerequisites: AUTC 101, AUTC 121, AUTC 123, AUTC 135, AUTC 201. This applied service course is designed to enhance a student's hands-on skills to diagnose and repair vehicle concerns across a variety of areas. Emphasis will be placed on Braking Systems, Steering and Suspension Systems, Climate Control Systems, and Automatic Transmissions.

AUTC 229 Driveability Diagnosis 3 Credits
Prerequisites: AUTC 219. This advanced course is designed to develop a student's ability to diagnose and repair complex driveability concerns. Emphasis will be placed on learning and following systematic diagnostic procedures. Students will utilize the advanced capabilities of diagnostic equipment provided.

AUTC 243 Advanced Electronics 3 Credits
Prerequisites: Program Advisor Approval. This course presents advanced theory and diagnosis of automotive electronic systems. Emphasis is placed on the testing and repair of these systems. This course uses lab scopes, scan tools, and graphing multi-meters. This is the capstone course for automotive technology.

AUTC 250 Motor Sports Fabrication I 3 Credits
Prerequisites: None. Introduces the fundamentals of motor sports fabrication and the required tools and equipment. Students will learn to cut, weld, and form metal for use in race car fabrication. Sheet metals, brakes, bead rollers, tube benders, tubing notchers and a variety of welding process will be covered. Students will demonstrate knowledge through project/task completion.

AUTC 251 Motor Sports Fabrication II 3 Credits
Prerequisites: AUTC 250, WELD 207, and WELD 208. Builds on the fundamentals learned in AUTC 250. Students will learn the basic machining process using mills, metal lathes and CNC processes. English wheels, planishing hammers, sheet metals brakes, bead rollers, tube benders, tubing notchers and a variety of welding process will be utilized. Students will demonstrate knowledge through project/task completion.

AUTC 253 Service Organization and Parts 3 Credits
Prerequisites: Program Advisor Approval. Facility and personnel requirements for efficiently run parts and service departments. Emphasis on principles, practices and procedures necessary to effectively operate departments. Includes manufacturer catalogs and component numbering systems, methods of scheduling time and techniques for obtaining work efficiency from technicians and specialists.

AUTC 254 High Performance Engines/Systems I 3 Credits
Prerequisites: None. Covers the fundamentals, construction, components and design of high performance engines/systems for various racing venues. The course will cover related systems; cooling, lubrication, suspension and braking. Students will study the theory, design and requirements of high performance engines/systems and then design their own modified engine which they will run and evaluate using the computer dyno simulation program. Emphasis is placed on bolt on performance modifications/power adders.

AUTC 255 High Performance Engines/Systems II 3 Credits
Prerequisites: AUTC 254. Covers the assembly/blueprinting of a competition engine. The course will focus on the basics of block and component preparation and clearancing, cylinder head porting, intake port matching and component balancing. Students will measure all critical clearances during assembly including but not limited to: deck heights, piston to valve clearances, chamber volumes, bearing clearances, piston to wall clearances, rod side clearances.

AUTC 257 Composite Fabrication I 3 Credits
Prerequisites: AUTC 250. Introduces the fundamentals of motor sports fabrication utilizing composite materials and the required tools and equipment. Students will learn to cut, lay up, form and cure materials for use in race car fabrication. Emphasis will be placed on Carbon Fiber and Fiberglass fibers with epoxy and polyester resin materials. Students will demonstrate knowledge through project/task completion.

AUTC 258 Motor Sports Kit Car Building 3 Credits
Prerequisites: None. Covers the design and building of the cola kit car. Emphasis will be placed on proper assembly/fabrication/improvement of the various subassemblies required to build this vehicle. Tire and wheel combinations, exhaust systems and other accessory options will also be discussed. Students will learn to cut, weld and form metal as needed for use in the kit car assembly. Students will demonstrate knowledge through project/task completion.

AUTC 260 Advanced Hybrid Vehicle and Electric Technologies 3 Credits
Prerequisites: AUTC 210. This course presents advanced theory, diagnosis and repair of Battery Electric Vehicles and Hybrid Electric Vehicles using manufacture specific diagnostic tools and equipment. This course will also include trouble-shooting of Plug-in Hybrid Electric Vehicle technologies, as well as installation of a Plug-in Hybrid Electric Vehicle conversion kit.

AUTC 261 Dynamometer Testing and Analysis 3 Credits
Prerequisites: Program Advisor Approval. Covers chassis dynamometer operation and analysis of the software generated data. Students should have a background in high performance vehicles. The affects of modifications to vehicles will be stressed.

AUTC 263 Blueprint and CAD Basics for Motor Sports 3 Credits
Prerequisites: None. Introduces basic blueprint reading skills commonly used in the racing parts fabrication and customization. Areas of study include: Interpretation of drawings dimensioned and noted to ANSI standards for machining, welding, and fabrication applications, inspection techniques, and CAD (Computer Assisted Design) fundamentals using AutoCAD® to create shop floor drawings. This course also introduces reverse engineering, automated inspection, and rapid prototyping techniques.

AUTC 264 Motorsports Machining 3 Credits
Prerequisite: None. This entry level course will cover machine shop safety, print reading and machining processes used in the fabrication and customization of racing parts. Machines used in this course are: manual with numerical control, vertical milling machines, engine lathes, pedestal grinders, and surface grinders.

AUTC 267 Motorsports Project 3 Credits
Prerequisites: AUTC 250, AUTC 251, AUTC 254. This capstone course is designed to provide students with an opportunity to apply their knowledge and skills to an actual Motorsports project in a production type environment. Projects will vary between work on actual race cars and work on supporting tools and equipment for the Motorsports Industry.

AUTC 271 Cooperative – Drivelines 3 Credits
Prerequisites: Program Advisor Approval. Provides qualifying students an opportunity to work at a job site and complete the requirements for driveline service. Provides on-the-job experience while earning credit toward an associate degree.

AUTC 272 Cooperative – Suspension 3 Credits
Prerequisites: Program Advisor Approval. Provides qualifying students an opportunity to work at a job site and complete the requirements for chassis and suspension service. Provides on-the-job experience while earning credit toward an associate degree.

AUTC 273 Cooperative – Brakes 3 Credits
Prerequisites: Program Advisor Approval. Provides qualifying students an opportunity to work at a job site and complete the require-
AUTC 274 Cooperative - Electrical Systems 3 Credits
Prerequisites: Program Advisor Approval. Provides qualifying students an opportunity to work at a job site and complete the requirements for electrical systems service. Provides on-the-job experience while earning credit toward an associate degree.

AUTC 275 Cooperative - Engine Repair 3 Credits
Prerequisites: Program Advisor Approval. Provides qualifying students an opportunity to work at a job site and complete the requirements for engine repair. Provides on-the-job experience while earning credit toward an associate degree.

AUTC 276 Cooperative - Engine Performance 3 Credits
Prerequisites: Program Advisor Approval. Provides qualifying students an opportunity to work at a job site and complete the requirements for engine performance. Provides on-the-job experience while earning credit toward an associate degree.

AUTC 279 Service Shop Operations 3 Credits
Prerequisites: Program Advisor Approval. Introduces students to the "Real World" atmosphere of the automotive workplace. By combining theory and practice, the course addresses current and future workplace needs and sets a foundation for preparing students for success in a job shop environment.

AUTC 280 Co-Op or Internship 1 Credit
Prerequisites: Program Advisor Approval. Provides qualifying students an opportunity to work at a job site that is specifically related to their career objective. This class will provide on-the-job experience while earning credit toward an associate degree.

AUTC 299 ASE Certification Review 3 Credits
Prerequisites: None. Prepares the professional automotive technician to attempt the National Institute for Automotive Service Excellence certification tests. All eight areas of testing will be reviewed in sample certification test given. Lectures will stress theory of operation and diagnostic logic.

AVIT 141 Aviation Basics I 3 Credits
Prerequisites: None. Provides familiarization with aviation drawings and blueprint reading. The student learns the proper methods to weigh various aircraft and the requirements for weight-and-balance reporting. Fabrication of fluid lines for hydraulic, oxygen, and fuel systems is also covered.

AVIT 142 Aviation Basics II 3 Credits
Prerequisites: None. A math and physics review course with practical applications for aviation. The student reviews basic mathematical operations, determines areas of wing plan forms, and volumes of fuel tanks. Ratios and proportions are discussed as they apply to wings and aircraft engines. The operation of simple machines, aircraft nomenclature, and basic aerodynamics are also covered.

AVIT 144 Aircraft Electricity 5 Credits
Prerequisites: None. Introduces the student to the principles of basic electricity. The student learns Ohm's Law and the relationships of voltage, current, resistance, and power in DC electrical circuits. The relationships between RMS values of voltage and current, true and apparent power, reactance, and impedance using vector algebra in AC circuits are discussed. Electrical wiring in the aircraft, proper test equipment, basic troubleshooting, and battery servicing are also covered.

AVIT 145 Aircraft Ground Servicing 2 Credits
Prerequisites: None. Focuses on the proper methods and safety procedures involved in working with aircraft on the ground. The student learns identification of aircraft fuels and refueling procedures and how to properly clean, inspect, and treat corrosion. Standard hand signals used with marshalling aircraft, engine run-up and taxiing procedures, and ramp safety are also included.

AVIT 146 Aviation Regulations 2 Credits
Prerequisites: None. Introduces the student to the Federal Aviation Regulations (FARs) pertaining to aviation maintenance (FAR Parts 23, 43, and 65), the Advisory Circulars (ACs) that expand upon these regulations, and proper record keeping for maintenance tasks performed on civil aircraft. Included are the format of technical publications and the various media (paper, microfiche, and CDRom) on which they are published.

AVIT 148 Aviation Materials and Processes 3 Credits
Prerequisites: None. Provides an overview of aviation manufacturing and inspection methods. The student is introduced to processes and special tools used in aviation quality assurance.

AVIT 222 Non Metallic Structures 6 Credits
Prerequisites: None. Introduces the student to inspecting and evaluation honeycomb and laminated structural damage as well as damaged transparent acrylic materials structures. The student becomes familiar with the methods involved in removing and repairing damaged honeycomb and laminated structural materials and repairing acrylic materials.

AVIT 226 Airframe Electrical Systems 3 Credits
Prerequisites: None. Presents the theory of operation and proper methods of inspecting, servicing, troubleshooting, and repairing the various electrically powered aircraft systems. Included are power distribution systems for light and transport aircraft, power generation and regulation. Proper wiring techniques and connector repair. Speed and configuration warning systems are also covered.

AVIT 227 Aircraft Sheetmetal 8 Credits
Prerequisites: None. Introduces the basic techniques necessary to perform sheet metal repairs on aircraft structures. Students develop skills in these areas: using sheet metal tools, laying out parts, forming parts with bending machines, and repairing various structural airframe components.

AVIT 228 Aircraft Instruments and Avionics 3 Credits
Prerequisites: None. Covers the inspection, troubleshooting, and servicing of avionics and aircraft instruments installed in both general aviation and transport category aircraft. Included are basic theory of operation and the regulations pertaining to maintenance of instruments and avionics.

AVIT 231 Reciprocating Powerplants 7 Credits
Prerequisites: None. Covers overhaul, inspection, and removal of reciprocating engines. Students perform a receiving inspection on an aircraft engine and perform a complete overhaul to operational condition. Students will also learn inspection and repair procedures specific to radial engines.

AVIT 232 Turbine Powerplants 7 Credits
Prerequisites: None. Covers the overhaul of a turbine engine; and the inspection, checking, servicing, repair, and removal/installation of turbine engines. Students perform a receiving inspection on an aircraft engine and perform a complete overhaul.

AVIT 233 Powerplant Fuel and Induction Systems 3 Credits
Prerequisites: None. Studies fuel metering systems in reciprocating powerplants. Airflow through turbines, superchargers, and carburetors are discussed. Students overhaul carburetors to supplement theory discussions in this area. Engine cooling systems are also covered.

AVIT 235 Powerplant Fluid and Indicating Systems 3 Credits
Prerequisites: None. Covers lubricating systems in reciprocating and turbine engines. Indicating systems, reciprocating and turbine-engine electrical systems and engine instruments are also covered. Students inspect, check, troubleshoot, and repair engine fire detection systems.

AVIT 237 Propellers 5 Credits
Prerequisites: None. Covers the inspection, repair, and troubleshooting of propeller control systems. The removal, installation, and balancing of propellers are also covered.
AVIT 241 Aircraft Fuel System and Welding Practices  
Prerequisite: None. Introduces the student to aircraft welding methods. These methods will include the welding of magnesium, titanium, stainless steel, and aluminum as well as fabrication of tubular structures. An additional major emphasis is aircraft fuel systems. This will include fuel dump systems, transfer systems, pressure fueling, and fluid quantity indicating. Transfer and troubleshooting of systems is also covered.

AVIT 242 Aircraft Inspection and Rigging  
Prerequisite: None. Introduces the student to aircraft assembly, rigging, and airframe inspection. Includes rigging of fixed wing aircraft and rotary wing aircraft. Students will be instructed in the alignment of structures, assembly of aircraft components including flight control surfaces, balance and rigging of moveable control surfaces. They will also do airframe inspection and conformity inspection.

AVIT 243 Aircraft Hydraulic and Pneumatic Systems  
Prerequisite: None. Present the theory and practical application of aircraft hydraulic and pneumatic systems as it relates to landing gear, wing de-ice, and environmental systems is also covered.

AVIT 244 Aircraft Landing Gear Systems  
Prerequisites: None. Introduces the student to safely putting an aircraft on jack stands for service. Also covers the inspection, service and repair of landing gear and retraction systems, shocks, struts, brakes, wheels, and steering systems. In addition student will learn to inspect, troubleshoot, and service landing gear position and indicating warning systems.

AVIT 245 Aircraft System  
Prerequisite: None. Introduces the student to various aircraft cabin atmosphere systems. Students will be introduced to instrument static pressure leak checks. They will also work on and be introduced to various warning systems, electric brake control, and anti-skid systems.

AVIT 251 Engine Cooling and Exhaust  
Prerequisite: None. Introduces students to various methods of engine cooling on piston and turbine engines. This will introduce superchargers, heat exchangers, mufflers, repairing cylinders on piston engines and the use of thruster reversers on turbine engines.

AVIT 252 Engine Install, Conformity, and Ignition  
Prerequisite: None. Students will remove and install piston and turbine engines. They will learn to pre-oil an engine after rebuild and troubleshoot, service, turbine engine exhaust nozzles. They will learn ignition harnesses, turbine engine ignitions and magnetoelectric.

AVIT 253 Engine Starting System  
Prerequisite: None. Introduces reciprocating and turbine engine electrical systems. Students will inspect, service, troubleshoot, and repair turbine pneumatic starting systems and turbine ignitions.

BANK 101 Principles of Banking  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Discusses ranges from fundamentals of negotiable instruments to contemporary issues and developments within the industry.

BANK 102 Law and Banking: Applications and Principles  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Introduces laws pertaining to secured transactions, letters of credit and the bank collection process. Provides a banker's guide to law and legal issues with special emphasis on the Uniform Commercial Code.

BANK 103 Consumer Lending  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Presents an insider's view of consumer lending, offering essential information about the maze of regulations that govern credit practices, and reviews loan processing, cross selling, and collections.

BANK 216 Analyzing Financial Statements  
Prerequisites: ACC 101. Provides a practical introduction to financial analysis from the viewpoint of the commercial loan officer and develops skills needed to effectively assess a borrower's ability to repay loans.

BANK 219 Bank Management  
Prerequisites: BANK 101. Provides a complete introduction to the handling of day-to-day bank activities and incorporates case studies to help acquire bank management skills.

BANK 220 Trust Operations  
Prerequisites: ACC 101 and BANK 101. Provides a broad, information framework intended to introduce students to quality trust operations in a time of accelerating change in the industry. The course presents the basics of trust operations providing an overview of: the Securities Industry, and the reasons for its existence; the participants and terminology in the securities industry; Trust services, includes the types of trust accounts and the management and operations of trust services; Trust accounting principals, concepts, functions and controls; and the relationship between the Bank and the trust department.

BCOM 102 Construction Graphics and Print Reading  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 024 and ENGL 031. Students gain knowledge and understanding of sustainable and economically justifiable construction in the "green" environment. The course focuses on various trends in the use of alternative materials and designs in both the residential and commercial/industrial markets. These are compared to traditional methods and will compare the impact to energy and environmental. As part of the energy impact both the initial and ongoing costs are reviewed. The various trade groups and their platforms are reviewed and discussed in relation to economically justifiable approaches. Finally the impact of new verses remodeled/renovated construction is evaluated.

BCOM 104 Commercial and Industrial Construction  
Prerequisites: BCOM 102. An introduction to steel, concrete, and composite material buildings found in heavy construction projects. Students will study steel frame, concrete structures, bent surface structures, space frames, and other construction types used in heavy commercial and industrial buildings.

BCOM 105 Concrete and Soils  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 024 and ENGL 031 and MATH 044 or MATH 015. An introductory study of the properties and uses of concrete in construction. Emphasis is placed on quality control in the field. Other topics include: design and methods of form work, placing, curing, and finishing. 25% of the course content will cover the properties and behavior of soils including compaction, permeability, compressibility, and shear strength. Course content is consistent with principles and standards as determined by the Portland Cement Association (PCA), the American Concrete Institute (ACI), the Construction Specifications Institute (CSI), and the American Society for Testing Materials (ASTM).

BCOM 115 Construction Management Practices  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL
Estimating and cost control tasks. Estimating projects are focused on commercial and industrial construction.

**BCOM 230 Construction Equipment** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Introduces principles and techniques for selecting and managing construction equipment. Identification and evaluation of types of site equipment including hand tools, power equipment, earthmoving/excavation equipment, etc. Emphasis is placed on estimating and analysis of equipment productivity, ownership and operating cost.

**BCOM 235 Safety and Risk Management** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Emphasis is placed on identifying and reducing safety risk on the job site. Students will study OSHA standards, accident and fire prevention, protection from hazardous materials, use of protective equipment and clothing, construction equipment and other safety concerns. The role of managers, workers, sub-contractors and others is stressed. Students will gain an appreciation for how accidents and safety concerns affect morale and productivity.

**BCOM 240 Professional Internship** 3 Credits
Prerequisites: Program Advisor Approval. Major focus is to provide practical on-the-job experience working with a construction company. Student interns might work in the areas of print reading, estimating, equipment management, project supervision, or other management related activities and tasks.

**BCOM 104 Floor and Wall Layout and Construction** 3 Credits
Prerequisites: None. Examines the design and construction of floor and wall systems. Student develops the skill needed for layout and construction of floor and wall systems from blueprints and professional planning documents.

**BCOM 105 Roof Construction** 3 Credits
Prerequisites: None. Studies the design and construction of roof systems. Emphasizes the framing square for traditional rafters and truss roofing. Instructs students in additional up-to-date techniques.

**BCOM 107 Electrical Blueprint Reading/NEC** 3 Credits
Prerequisites: CONT 107. An introduction to the skills in basic electrical print interpretation and understanding electrical symbols, presenting the student with the electrical design problems and related calculations in accordance with the most current NEC. Emphasis is placed on reading blueprints and specifications for a single-family dwelling, multi-family dwelling, commercial and industrial applications and hazardous locations. The student will be using a new computer assisted program to assist with estimating a project. Emphasis will be placed on understanding residential and commercial standard and the proper development of mechanical engineering drawings.

**BCOM 110 Cabinetry** 3 Credits
Prerequisites: None. Develops knowledge and skills in building of cabinets, including methods of construction, necessary hardware and installation; also use of portable power tools and stationary power tools.

**BCOM 113 Interior Trim** 3 Credits
Prerequisites: CONT 101. Develops essential skills in the finishing of the interior trim of a building. The student obtains skills in the installation of the cornice, windows, doors and various types of sidings used in today's market place.

**BCOM 115 Auxiliary Building Design and Construction** 3 Credits
Prerequisites: CONT 101. Develops carpentry skills in the construction of garages, storage buildings, wood decks, patios, privacy fences and gazebos.

**BCOM 120 Woodworking Fundamentals** 3 Credits
Prerequisites: None. An introductory study of the basic skills in woodworking. Emphasis is placed on safety, tool set-up and machine operations. Other topics include proper jointery and material selection.

**BCOM 121 Furniture Design and Construction** 3 Credits
Prerequisites: BCOM 120. Develops skills in the design, layout, and construction of furniture. Students are introduced to furniture styles, types of materials used, and methods of construction.

**BCOM 122 Woodworking Jig Layout** 3 Credits
Prerequisites: BCOM 120. Develops skills in the design, layout, and construction of holding devices, called jigs, used for special setups on the table saw, joiner band saw, and other woodworking machines. Each jig can be a single function, or a multi-functioning jig.

**BCOM 123 Furniture Framework** 3 Credits
Prerequisites: None. Introduces the basic skills and technology of furniture construction, focusing on case construction, face frames and furniture legs.

**BCOM 124 Millwork** 3 Credits
Prerequisites: BCOM 120. Introduces the basic skills and technology of the production of wood products and focuses on machinery set-up and operations for making moldings, doorframes and picture frames.
BCOT 125 Furniture Finishing and Repair  3 Credits
Prerequisites: None. Develops knowledge and skills in the technology of refinishing and repairing furniture. Introduces procedures used in stripping, bleaching, cleaning, veneering and wood fillers.

BCOT 126 Furniture Door and Drawer Assembly  3 Credits
Prerequisites: BCOT 120. An advanced class that develops skills in the design, layout, and construction of doors, drawers, and tabletops. Students are introduced to various types of hardware and installation methods.

BCOT 127 Basic Theory of Paint and Stain  3 Credits
Prerequisites: None. Introduces the basic skills and techniques of finishing wood products, including proper preparation, staining and finishing procedures.

BCOT 128 Woodworking Hobbies and Crafts  3 Credits
Prerequisites: None. Introduces the basic skills and techniques in layout and construction of small projects such as bookcases, file cabinets, and mantels. Introduces the skills in layout and assembly of small hobby projects such as kitchen accessories, and living room, bedroom decorations.

BCOT 129 Residential Wiring  3 Credits
Prerequisites: CONT 127. Covers the practice of residential wiring, including electrical service, metering equipment, lighting, switches, outlets and other components, and methods of installation and maintenance of the residential wiring system in accordance with the current National Electrical Code.

BCOT 130 Home Inspection  3 Credits
Prerequisite: None. This course is designed to review the way buildings are designed and constructed, which areas of buildings should be inspected, and how to inspect them. Students will learn to prepare an inspection report; reports designed to meet the specifications of lending institutions and other organizations requiring home inspection services.

BCOT 131 Residential Building Codes  3 Credits
Prerequisite: None. Introduces the students to building code requirements in Indiana. Students will become familiar with the current code book and how to use it. Emphasis will be placed on examining those provisions that apply to general contractors.

BCOT 171 Landscape Construction  3 Credits
Prerequisites: None. Study design and construction of various landscape construction systems. Emphasize use of the landscape tools and methods for exterior design. Instruct students in additional up-to-date techniques and materials. Introduces “green” practices.

BCOT 172 Kitchen and Bath Construction  3 Credits
Prerequisites: None. Involves the requirements and space planning for kitchens and baths, utilizing both standard and custom cabinetry and fixtures. Topics also include plumbing, electrical and current technologies available in these environments.

BCOT 202 Plumbing Fundamentals  3 Credits
Prerequisites: None. Studies the operation and function of the home plumbing system. Introduces pipe drawings and pipe layout and isometric blueprint reading symbols. Demonstrates how to rough in plumbing and install drainage, water systems, fixtures and water heaters in compliance with the plumbing code.

BCOT 203 Masonry Concrete Fundamentals  3 Credits
Prerequisites: None. Covers materials and methods of construction with concrete block, brick, and forming for poured concrete. Includes study in the preparation of the building site.

BCOT 205 Advanced Projects in Building Construction I  3 Credits
Prerequisites: CONT 101 and CONT 106. Applies problem solving to common problems in construction. Emphasizes the cooperation between several trades in the construction industry.

BCOT 206 Advanced Projects in Building Construction II  3 Credits
Prerequisites: BCOT 205. Applies problem-solving skills to common challenges in construction. Emphasizes the cooperation between several trades in the construction industry allowing students to practice necessary skills to resolve the problem. Concentrates on decision-making skills.

BCOT 207 Carpentry-Light Commercial  3 Credits
Prerequisites: None. Introduces carpentry skills required in light commercial construction. Focuses on construction methods and materials used for office buildings, clinics, small churches and other non-residential structures.

BCOT 208 Electrical Estimating  3 Credits
Prerequisite: CONT 127. This course presents the student with the electrical estimating process for residential and light commercial construction. Emphasis is placed on reading blueprints and specifications, estimating labor, materials, and associated costs. The student will be using a new computer assisted program to assist in estimating a project.

BCOT 211 Construction Organization and Procedures  3 Credits
Prerequisites: None. Introduces organization and management procedures focusing on subcontracting, equipment and tool inventories, job materials, codes, inspections and permits.

BCOT 213 Motors and Motor Controls  3 Credits
Prerequisites: CONT 127. Studies the wiring and design of motor control circuits, including circuit and conductor calculations, motor circuits and controls. Includes control transformers and service, circuit layout for motor controls and machine tool hookup and control.

BCOT 214 Wall and Floor Coverings  3 Credits
Prerequisites: None. Covers modern materials and techniques of interior and exterior wall coverings. Provides instruction on assessing the durability and maintenance of materials and techniques in correct installation procedures.

BCOT 216 Advanced Residential Design  3 Credits
Prerequisites: Program Advisor Approval. Studies residential floor plans and elevations. Analyzes contemporary living patterns, cost, privacy, convenience and efficiency, coordinated with needs. Compares exterior styles for cost and aesthetic values. Studies multiple housing, duplex arrangements, apartments and condominiums. Provides students with opportunities to do floor plans, elevations, and perspective drawings to incorporate the conclusions reached from research.

BCOT 219 Survey and Measurement  3 Credits
Prerequisites: CONT 106 and demonstrated competency through appropriate assessment or earning a grade of “C” or better in MATH 050 or MATH 015 or MATH 023. Presents fundamentals of surveying, including use of transit, reading angles, land description, restrictions and legal problems. Covers topographical maps and their use.

BCOT 220 Electrical Troubleshooting  3 Credits
Techniques
Prerequisites: CONT 127. Presents methods and techniques for troubleshooting appliances, motors, motor controls, relay wiring, commercial wiring and industrial wiring systems.

BCOT 222 Commercial/Industrial Wiring  3 Credits
Prerequisites: CONT 127. Covers wiring methods and material selection for commercial and industrial wiring systems. Studies include mechanical installation of hardware as well as electrical design and layout. Focuses on tool use, material selection, and installation of machines in the industrial setting.

BCOT 223 Plumbing Design and Installation  3 Credits
Prerequisites: BCOT 202. Provides techniques for working with pipes and fittings. Studies residential and commercial electrical hot water heating systems, private well water systems and electrical components of plumbing systems.

BCOT 225 Fabrication  3 Credits
Prerequisites: Program Advisor Approval. Studies concepts and techniques of industrialized housing. Covers pre-fabrication, fabrication, jigs and rigging, including manufactured housing, sectional homes and modular homes.

BCOT 228 Advanced Woodworking  5 Credits
Prerequisites: BCOT 120. Applies problem-solving solutions in furniture construction, as well as cabinetry construction and installation.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites/Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 065</td>
<td>Basic Life Sciences</td>
<td>3</td>
<td>none. Corequisite: Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 031 and MATH 044 or MATH 015. Introduces the scientific method and the basic concepts and terminology used in biology, microbiology, anatomy, physiology, and organic chemistry which is related to life sciences. Prepares entering students who took no high school science or who took science several years ago for general education life sciences courses. Includes lab.</td>
</tr>
<tr>
<td>BIOL 100</td>
<td>Human Biology</td>
<td>Transfer IN 3 Credits</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. This course is a study of the biology of the human organism. It includes an examination of organizational complexity, development, health, and the place of humans in the natural world. Includes lab.</td>
</tr>
<tr>
<td>BIOL 101</td>
<td>Introductory Biology</td>
<td>Transfer IN 3 Credits</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 050 or MATH 015 or MATH 023. Introduces the basic concepts of life. Includes discussion of cellular and organismal biology, genetics, evolution, ecology, and interactions among all living organisms. Addresses applications of biology to society. Includes lab.</td>
</tr>
<tr>
<td>BIOL 105</td>
<td>Biology I</td>
<td>Transfer IN 5 Credits</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 050 or MATH 015 or MATH 023. An in-depth overview of the principles of molecular and Mendelian genetics, concepts of Natural Selection in relation to evolution, and principles of population ecology and their effects on organismal diversity. Includes lab.</td>
</tr>
<tr>
<td>BIOL 107</td>
<td>Biology II</td>
<td>Transfer IN 5 Credits</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 050 or MATH 015 or MATH 023. An in-depth overview of the principles of basic biochemistry, concepts of cell structure, cell metabolism, and cellular respiration, processes of DNA replication and gene expression, fundamentals of plant structure and function, principles of animal reproduction and development, and an overview of vertebrate anatomy. Includes lab.</td>
</tr>
<tr>
<td>BIOL 110</td>
<td>Entomology</td>
<td>3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032, and MATH 050 or MATH 015 or MATH 023. This course will cover basic entomological concepts, including structure and function, behavior, evolution, and ecology. Reviews of insect order and look at how insects interact with human societies. Includes lab.</td>
</tr>
<tr>
<td>BIOL 120</td>
<td>Environmental Science</td>
<td>3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015 or MATH 023. Survey of the basic concepts of ecology, natural resources and ecosystems, relationships between humans and their natural environment, and the magnitude and scope of global environmental problems. Includes lab.</td>
</tr>
<tr>
<td>BIOL 121</td>
<td>General Biology I</td>
<td>4</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 050 or MATH 015 or MATH 023. An introduction to those biological and chemical principles associated with cell structure and function, cell division, molecular, and Mendelian genetics, enzyme function and energetics. An overview of natural selection, the structure, lifecycle and classification schemes of vascular plants will also be presented. Includes lab.</td>
</tr>
<tr>
<td>BIOL 122</td>
<td>General Biology II</td>
<td>4</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032, and MATH 050 or MATH 015 or MATH 023. An introduction to those biological principles associated with evolution, form and function of plants and animals and ecology. The course will trace the evolution of organisms and explore plant structures, development and interaction with their environment. Students will look at anatomy, physiology, development and behavior of animals and will learn aspects of conservation biology. Includes lab.</td>
</tr>
<tr>
<td>BIOL 200</td>
<td>General Microbiology</td>
<td>4</td>
<td>BIOL 101, BIOL 105 or APHY 101 and earning a grade of &quot;C&quot; or better in MATH 050 or MATH 015 or MATH 023. Presents an in-depth overview of microbiology, including fundamental structures of microorganisms, their metabolism, classification and interaction with other living things, and the laboratory techniques for their study. Introduces industrial and clinical applications of microbiology and clinically related areas of bacterial, viral, fungal, and parasitic involvement. Includes lab.</td>
</tr>
<tr>
<td>BIOL 201</td>
<td>General Microbiology I</td>
<td>2</td>
<td>BIOL 201 or BIOL 211. A secondary study of microorganisms, including the characterization of bacterial growth and techniques of controlling microbial growth. Provides an in-depth coverage of analytical and serological techniques commonly encountered in the microbiology laboratory. Includes lab.</td>
</tr>
<tr>
<td>BIOL 202</td>
<td>General Microbiology II</td>
<td>4</td>
<td>BIOL 201 or BIOL 211. A secondary study of microorganisms, including the characterization of bacterial growth and techniques of controlling microbial growth. Provides an in-depth coverage of analytical and serological techniques commonly encountered in the microbiology laboratory. Includes lab.</td>
</tr>
<tr>
<td>BIOL 210</td>
<td>Microbiology I</td>
<td>Transfer IN 3 Credits</td>
<td>BIOL 101 or APHY 101 and earning a grade of &quot;C&quot; or better in MATH 050 or MATH 015 or MATH 023. An overview of microbiology including fundamental structures of microorganisms, their metabolism, classification and interaction with other living things, and the laboratory techniques for their study. Introduces industrial and clinical applications of microbiology. Includes lab.</td>
</tr>
<tr>
<td>BIOL 212</td>
<td>Microbiology II</td>
<td>2</td>
<td>BIOL 211 and APHY 101. Presents a secondary study of bacteria, viruses, fungi, rickettsia, and parasites. Emphasizes the study of bacterial growth and control demonstrated by serological techniques. Includes lab.</td>
</tr>
<tr>
<td>BIOL 221</td>
<td>Molecular Biology</td>
<td>3</td>
<td>BIOL 121 or BIOL 107. Corequisites: CHEM 101 or CHEM 105. An introduction to DNA, RNA and proteins and a review of their structures and functions, including their physical and chemical properties and their roles in cellular metabolism. The course will include an in-depth look at the synthesis of these molecules, as well as their replication, transcription and translation. Includes lab.</td>
</tr>
<tr>
<td>BIOT 100</td>
<td>Survey of Biotechnology</td>
<td>3</td>
<td>BIOL 121. Presents a basic overview of biotechnology emphasizing current DNA and RNA technologies and structure and function of biomolecules. The application of these techniques in the field of medicine, agriculture, forensics and environment is emphasized. Scientific methods, lab safety and regulations and ethics of the biotechnology industry will also be covered. Includes lab.</td>
</tr>
<tr>
<td>BIOT 101</td>
<td>Introduction to Biotechnology</td>
<td>4</td>
<td>Program Chair Approval. Students will be introduced to the basics of biotechnology and the biology required to understand biotechnology. Students will then learn about the local biotech industry and some of the general practices shared by all biotech industries. Students will spend the second half of the course focusing on the specifics of either biomanufacturing or medical device manufacturing, earning a certificate in the area of their focus.</td>
</tr>
<tr>
<td>BIOT 102</td>
<td>Survey of Biotechnology</td>
<td>3</td>
<td>Manufacturing. Corequisite: Program Chair Approval. Students will be introduced to the basics of biotechnology and the biology required to understand biotechnology. Students will then learn about the local biotech industry and some of the general practices shared by all biotech industries. Students will spend the second half of the course focusing on the specifics of either biomanufacturing or medical device manufacturing, earning a certificate in the area of their focus.</td>
</tr>
<tr>
<td>BIOT 103</td>
<td>Safety and Regulatory Compliance for Biotechnology</td>
<td>3</td>
<td>BIOL 105 or BIOL 121 or CHEM 101 or CHEM 105 or CHEM 111. Overview of laboratory safety procedures and precautions. Biosafety, radiation safety, compliance standards of regulatory agencies. Emphasis will be placed on understanding the regulatory environment of pharmaceutical, diagnostic and agricultural research and manufacturing. Students will be introduced to the agencies in</td>
</tr>
</tbody>
</table>
the U.S. responsible for regulatory oversight of biotechnology. Concepts of current good laboratory practices (cGLP), current good manufacturing practices (cGMP), standard operating procedures (SOP) and validation will be addressed as they apply to industry.

B I O T 1 0 4 cGMP and Quality Compliance 3 Credits
Prerequisites: BIOL 121 or Program Chair Approval. Overview of current good manufacturing practices in the pharmaceutical industry. Emphasis will be placed on the understanding of the similarities and differences between the good manufacturing practice requirements in the United States, Europe, Canada and Japan. Students will also explore the different quality systems and processes needed in the pharmaceutical industry.

B I O T 1 0 5 Survey of Regulatory Affairs 3 Credits
Prerequisite: Program Chair Approval. This course provides an entry level introduction to the laws and regulations that govern the development, marketing and commercial distribution of drugs, biological and medical device products and how they relate to the pharmaceutical, biotechnology and medical device industry. This course is intended to provide individuals with a greater understanding of regulatory affairs, specifically providing an understanding of how their actions are controlled by regulations and how to interact with FDA or global regulatory agencies.

B I O T 1 1 7 Quality Control Techniques 3 Credits
Prerequisite: BIOT 101. Students will be introduced to those principles associated with quality control from a life sciences perspective. Students will learn about common microbial contaminants and how to prevent them. Students will also gain experience with common monitoring techniques used in the biotech industry.

B I O T 2 0 1 Cell Culture and Cellular Processes 4 Credits
Prerequisites: BIOT 101 and CHEM 105 or CHEM 111. An introduction to major biochemical pathways, cellular structure and function at a molecular level. Topics to be considered include the structure and function of the cell membrane, cytoskeleton and various organelles. Cellular respiration will be discussed. Protein synthesis, processing and export will be examined. Those processes involved in cell division will also be investigated and related to cancer. The laboratory will center upon techniques involving animal, plant, fungi and bacterial cell cultures. Students will be taught how to isolate, culture and preserve prokaryotic organisms. Students will be taught how to maintain and preserve eukaryotic cell cultures. Students will learn to procure cell cultures from ATCC and other repositories. Includes lab.

B I O T 2 1 1 Analytic Methods in Biotechnology I 3 Credits
Prerequisites: BIOT 101 and CHEM 105 or CHEM 111. Theory and application of many analytical methods currently utilized in the field of biotechnology. These methods will include: ELISA and immunooaffinity techniques; methods for determining enzymatic activity; spectrophotometric methods; chromatographic methods; electrophoresis; light and electron microscopy. When feasible, techniques will be practiced in the laboratory setting. Methods utilizing radiotracers will be discussed. Considerable emphasis will be placed on proper methods for data recording, analysis and presentation. Includes lab.

B I O T 2 1 2 Analytic Methods in Biotechnology II 3 Credits
Prerequisites: BIOT 211. Theory and application of many analytical methods utilized in the field of biotechnology. These methods will include: centrifugation, light and electron microscopy, restriction endonuclease digestion, agar and acrylamide electrophoresis of nucleic acids, Southern and Northern blotting, polymerase chain reaction and bioassays. When feasible, techniques will be practiced in the laboratory setting. Methods utilizing radiotracers will be discussed. Considerable emphasis will be placed on proper methods for data recording, analysis and presentation. Includes lab.

B I O T 2 1 4 Food and Drug Law 3 Credits
Prerequisite: BIOT 101. This course provides a basic introduction to the laws and regulations that govern the development, marketing and commercial distribution of drugs, biological and medical device products and how they relate to the pharmaceutical, biotechnology and medical device industry. This course is designed to provide students with an overall landscape of U.S. and international laws regulating the drug, biotechnology and medical device industry.

B I O T 2 1 5 Clinical Trials 3 Credits
Prerequisite: BIOT 101. This course provides a basic introduction to clinical trials, including their design, how they are conducted, and concepts of current good clinical practices (cGCPs). This course is designed to provide students with an overview of the clinical trial process, FDA regulations and ICH guidelines pertaining to that process.

B I O T 2 1 6 Risk Management for Drugs and Medical Devices 3 Credits
Prerequisite: BIOT 101. This course provides a basic introduction to risk management strategy application of best practices and risk management for both the drug and medical device industry. This course is designed to provide students with an overall understanding of this growing discipline to improve patient safety and the regulatory mandates and laws.

B I O T 2 1 7 Biotechnology Manufacturing Processes 3 Credits
Prerequisites: Program Advisor Approval. Introduction to processes and procedures involved in manufacture of biological molecules on both large- and small-scales. Students will learn function of commonly used manufacturing equipment associated with biotechnology and understand the cGMP's associated with use of such equipment. The regulatory environment associated with most biotechnology endeavors will be reviewed including those mandated by FDA, USDA and OSHA.

B I O T 2 1 8 Product Life Cycle 3 Credits
Prerequisite: BIOT 101. This course provides a basic introduction to the basic life cycle of both drug and medical device life cycles, from discovery through preclinical, clinical trials, and post production concerns.

B I O T 2 2 0 Molecular Biology Lectures 3 Credits
Prerequisites: BIOL 121 and CHEM 106. Introduces DNA, RNA and proteins and review their structures and functions, including their physical and chemical properties and their roles in cellular metabolism. The course will include an in-depth look at the synthesis of these molecules, as well as DNA replication, transcription and translation.

B I O T 2 2 1 Microbiology 3 Credits
Prerequisites: BIOL 121 and CHEM 106. Corequisites: BIOT 222. Presents an overview of microbiology including fundamental structures of microorganisms, their growth, metabolism, interaction with other living things, and classification. Emphasis placed on industrial applications of microbiology.

B I O T 2 2 2 Microbiology Laboratory 2 Credits
Prerequisites: BIOL 121 and CHEM 106. Corequisites: BIOT 221. A conventional laboratory of exercises, demonstrations and discussions. Laboratory exercises are designed to enable students to achieve proficiency in the principles and techniques necessary for cultivation of microorganisms using aseptic techniques and for performing and interpreting biochemical tests. The laboratory exercises will be filled out weekly and turned in to be graded.

B I O T 2 2 7 Genetic Engineering and DNA Analysis 4 Credits
Prerequisites: BIOT 201 or BIOT 211. The essential concepts and techniques in genetic engineering. Students will practice essential gene cloning procedures: isolation of DNA, restriction endonuclease digestion, agarose gel electrophoresis analysis, DNA ligation, and transformation into a host strain. Other essential techniques such as PCR, construction and screening of genomic or cDNA libraries, Southern and Northern blot analyses will be practiced. Students will understand the principles and ethical issues of animal or human cloning practices. Current methods for transfer and propagation of genes into plants and animals will be discussed. Various gene knockout techniques such as homologous gene recombination, site-directed mutagenesis, and RNAi will be introduced. The topic in genomics, proteomics, and bioinformatics will be discussed. Includes lab.

B I O T 2 3 1 Industrial Processes and Fermentation 4 Credits
Prerequisites: BIOT 201. An introduction to fermentation processes used for commercial purposes and the operation of small- and large-scale fermentors. Methods used to harvest product from fermentors and the regulatory requirements associated with commercial fermentation will also be explored. Includes lab.
BIOT 233 Protein Analysis and Purification  4 Credits
Prerequisites: BIOT 211. Students will review the biochemical properties of amino acids and proteins, then study techniques of cell disintegration, isolation, and analysis. Students will be taught to determine which method is most applicable in various situations and why that method should be utilized. When possible, students will be given an opportunity to perform these techniques in the laboratory. Includes lab.

BIOT 235 Biotechnology Laboratory  3 Credits
Prerequisites: BIOT 107 and CHEM 105. Corequisites: BIOT 221. Presents overview of basic biotechnology laboratory skills emphasizing chromatography techniques, methods of DNA and protein electrophoresis, processes of immunoassays, data management skills, recombinant DNA technology, and the polymerase chain reaction.

BIOT 237 Plant Tissue Culture  4 Credits
Prerequisites: BIOT 201, BIOT 212 and CHEM 106. The student will be introduced to basic techniques of plant tissue culture. This is the aseptic culture of plant cells, tissues, organs, and plants. This course seeks to familiarize students with the basic principles of tissue culture and to expose them to their many applications. The course includes media preparation, isolation of explants, and establishment of callus from suspension cultures, growth factor bioassays, and regeneration of whole plants from tissue and plant genetic engineering techniques. We will also discuss the theory, production and societal implications of transgenic plants.

BIOT 239 Biomaterials and Tissue Engineering  4 Credits
Prerequisites: BIOT 201. The student will be introduced to biomaterial and tissue functionality and design including the basic concepts underlying physiological responses to wounds and foreign materials. Topics to be considered include biomaterial scaffolds, relevant cell types, soluble regulators or their genes, and mechanical loading and culture conditions. Comparisons will be made between differentiated cell types and stem cells as well as natural and synthetic scaffolds. Methodology for the preparation of cells and scaffolds in practice is described. The rationale for employing growth factors is covered and the techniques for gene modification for optimization, matrix interactions are discussed. Methods for fabricating tissue-engineered products and devices for implantation are taught including material selection and processing, mechanisms of material degradation, cell-material interactions and interfaces, matrix structure transport issues. Examples of tissue engineering-based procedures currently employed clinically are analyzed as case studies. Students will gain experience with biomaterial design and modification in addition to cell culture with these matrices.

BIOT 241 Immunology and Immunological Processes  4 Credits
Prerequisites: BIOT 211. A brief survey of the components of the immune system and how they interact. The topics covered will include B and T cell development, activation and culture, the role of cytokines, their production and purification, signal transduction processes in B-cell activation, the role of MHC complexes, immunoglobulin synthesis and origins of diversity, antigen antibody interactions, practical aspects of raising and purifying polyclonal and monoclonal antibodies, handling and labeling of antibodies, applications of antibodies including Western blotting, ELISA, and immunohistochemistry. Includes lab.

BIOT 280 Co-op/Internship  2-6 Credits
Prerequisites: Program Advisor Approval. Provides students with the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit toward an associate degree.

BUSN 101 Introduction to Business Transfer IN  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Examines the American business system in relation to the economic society. Studies business ownership, organization principles and problems, management, control facilities, administration, and development practices of American business enterprises.

BUSN 102 Business Law  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Describes the judicial system and the nature and sources of law affecting business. Studies contracts, sales contracts with emphasis on Uniform Commercial Code Applications, remedies for breach of contract and tort liabilities. Examines legal aspects of property ownership, structures of business ownership, and agency relationships.

BUSN 104 Investment  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An introduction to the fundamentals of investing. Presents the basis of investing with attention to the various ways in which investment vehicles operate.

BUSN 105 Principles of Management  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Describes the functions of managers, including the management of activities and personnel. Focuses on application of guidance principles in management.

BUSN 106 Customer Service  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Focuses on the importance of providing superior customer service to the organization as well as the customer service representative. Fundamental customer service techniques applicable to a variety of situations are presented.

BUSN 108 Personal Finance  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. Emphasizes management of individual financial resources for growth and maintenance of personal wealth. Covers home buying and mortage financing, installment financing, life and health insurance, securities, commodities and other investment opportunities.

BUSN 110 Introduction to Logistics  3 Credits
Prerequisites: None. A study of the basic concepts included in the field of logistics and supply chain management. Topics covered include supply chain management, customer service, transportation, purchasing and inventory and warehouse management.

BUSN 120 Business Ethics and Social Responsibility  3 Credits
Prerequisites: BUSN 101. An examination of individual, organizational and societal ethical issues and the social responsibility of business organizations in the resolution of these issues. Critical thinking and informed decision making are emphasized.

BUSN 201 Human Resource Management  3 Credits
Prerequisites: BUSN 105. Focuses on the activities of human resource management, with emphasis on employer-employee relationships, job analysis and evaluation, salary administration, work measurement and standards, performance appraisal and legal compliance.

BUSN 203 Business Development  3 Credits
Prerequisites: BUSN 105, MKTG 101 and ACCT 102. Explores business operations for the self-employed or as a manager of a small business enterprise. The course includes: covering the role of entrepreneur and manager; selecting the appropriate business organization; developing plans and strategies for small, medium, and growing firms; securing financing for start-up and growing operations; exploring growth opportunities; and successfully managing human and material resources.

BUSN 204 Case Problems in Business  3 Credits
Prerequisites: Program Chair Approval. Applies business concepts and principles to specific case studies or problems.

BUSN 205 Risk Management  3 Credits
Prerequisites: BUSN 101, BUSN 102 and MATH 050 or MATH 015 or MATH 023. Examines the risks faced by businesses and individuals; it then considers ways of handling them. Topics covered include property, liability and personal losses that may result due to assuming these risks. Much attention is paid to the use of insurance contracts in reducing the impact of the possible losses. Specific areas include automobile, home, life, health, and pension insurance as well as public policy, government regulations, and social insurance programs.
BUSN 206 Crisis Management 3 Credits
Prerequisite: None. Explores how to manage business crises, how best to avoid them, and what managers can learn from the experience.

BUSN 207 Introduction to International Business 3 Credits
Prerequisites: BUSN 101. Provides an overview of the international environment in which business operates today. Demonstrates the global relationships between business activities and how events in one part of the world can influence business decisions and activities in other parts of the world.

BUSN 208 Organizational Behavior 3 Credits
Prerequisites: BUSN 105. Studies human behavior in organizations at the individual and group level, including the effects of organizational structure on behavior. Focuses on using organizational behavior concepts for developing and improving interpersonal skills.

BUSN 209 Introduction to e-Business 3 Credits
Prerequisites: BUSN 101 and CINS 101. Focuses on how e-business is being conducted and managed, its major opportunities, limitations, issues and risks. Uses applications to be discussed in class to engage students with the concepts of business to consumer, business to business, and intra-business. Because e-business is interdisciplinary, subjects matter will be directed at managers, professionals, and students who wish an overview of the e-business potential.

BUSN 210 Managerial Finance 3 Credits
Prerequisites: ACT 101 and BUSN 101, and MATH 111 or MATH 035 or MATH 043. An introductory course in the principles of financial management. Develops decision-making skills related to the financial resources of a firm. Includes techniques of financial analysis, time value of money, capital budgeting, risk, and return.

BUSN 212 Principles of Leadership 3 Credits
Prerequisites: BUSN 105. Introduction and overview of fundamental concepts of effective leadership in formal organizations.

BUSN 213 Management in Non-Profit Organization 3 Credits
Prerequisites: BUSN 105. This course is designed to introduce the student to the purpose and function of non-profit organizations. Students will apply planning, organization, leadership and control techniques as they apply to the non-profit sector.

BUSN 220 Conference Leadership Training 3 Credits
Prerequisites: None. Emphasizes the practical application of the various techniques of conference leadership and an understanding of group dynamics in the conference setting.

BUSN 221 Principles of Employment 3 Credits
Prerequisites: BUSN 202. An in-depth look at the employment process. Emphasis will be placed on the role of recruiting, selecting and training of employees. Techniques in job analysis, behavioral interviewing, and on-the-job training will be studied in much detail.

BUSN 222 Benefits Administration 3 Credits
Prerequisites: BUSN 202. Provides an in-depth look at benefit administration. Topics include vacations, holiday pay, insurance, retirement programs and other employee inducements. Emphasis will be placed on cost of benefits in relationship to the overall compensation package. The course will also look at the relevance of reward and recognition and pay structures.

BUSN 223 Occupational Safety and Health 3 Credits
Prerequisites: BUSN 105. A look at the importance of safety and health in the workplace. The Occupational Safety and Health Act of 1970 will be examined in depth with relationship to businesses and their employees. Emphasis will be placed on effective practices, costs, labor and management responsibilities, health hazards, alcohol and drug abuse, workers' compensation, physical conditions and training.

BUSN 227 Logistics/Supply Chain Management 3 Credits
Prerequisites: BUSN 101. A study of the strategic supply chain concepts included in the field of logistics and supply chain management. Topics covered include: supply chain strategy, planning and design, customer service, transportation, purchasing, forecasting, inventory and warehouse management, global supply chain management, managing supply chain risk, and financial control of logistics performance.

BUSN 228 Principles of Purchasing 3 Credits
Prerequisites: BUSN 101. Designed to teach the basics of purchasing management. Topics covered include: the challenge of purchasing management, objectives and organization, function, specification, quality control and inspection, supplier evaluation, selection, and measurement, supplier development, strategic cost management, contracts and negotiation, purchasing relationships, purchasing transportation, purchasing laws and ethics, and global sourcing.

BUSN 229 Transportation Systems 3 Credits
Prerequisites: BUSN 101. Examines the structure and importance of the commercial transportation industry in the logistics sector of business. Topics covered include an in-depth examination of the various modes of transportation including discussions of regulations, economics, characteristics, and development in major transportation modes. Also discussed are costing and pricing issues in transportation and relationship management between buyers and sellers of transportation.

BUSN 230 Business Statistics 3 Credits
Prerequisites: BUSN 101 and MATH 111 or MATH 035 or MATH 043. Designed to build student competence in the areas of descriptive and inferential statistics, through emphasis on the application of these statistical methods. Includes an examination of data, probability of occurrence, and basic sampling processes. Uses statistical methods to test results and uses these models for forecasting. Tests to examine the appropriateness of these techniques are introduced.

BUSN 231 Business Statistics II 3 Credits
Prerequisites: BUSN 230. Emphasizes MATH 201. Focuses on Chi-Square applications, linear regression, multiple regression, and an analysis of variance. Students will be expected to apply a statistical package to topical applications.

BUSN 235 SHRM Certification Preparation 3 Credits
Prerequisites: Program Advisor Approval. Prepares students to sit for the Professional in Human Resources (PHR) certification exam sponsored by the Society for Human Resource Management.

BUSN 271 Lessons in Leadership 3 Credits
Prerequisite: BUSN 105. Leadership styles and strategies of historical leaders and/or modern day leaders are analyzed and applied to 21st century business scenarios. Modern management theories are discussed in relationship to actual events in historical events to legitimize the theories in a practical application.

BUSN 280 Co-op/Internship 1-6 Credits
Prerequisites: Program Advisor Approval. Provides the opportunity to work at a job site that is specifically related to their career objective. Provides on-the-job experience while earning credit toward an associate degree.

CARD 205 Introduction to Electrocardiography 3 Credits
Prerequisites: HLHS 101. This course presents the rationale for obtaining an electrocardiogram as well as related theory including anatomy and physiology, procedural technique and equipment utilized. Students will be introduced to basic rhythm analysis including recognizing standard electrical waves and accurately measuring each normal sinus rhythm and basic arrhythmias.

CARD 206 Advanced Electrocardiograph Technique 3 Credits
Prerequisites: CARD 205. Discusses related anatomy and physiology of the cardiovascular system; identification of cardiac arrhythmias, their rhythm strip appearance and common treatment modalities. Also includes event and Holter monitoring.

CARD 207 ECG Externship 3 Credits
Prerequisites: Program Advisor Approval. Provides opportunities to observe, perform, and discuss various ECG related competencies under supervision in selected clinics or hospitals.

CATX 101 Physical Principles, Clinical Applications and Quality Control I 3 Credits
Prerequisite: Advisor Approval. Provides comprehensive coverage of
the physical principles of Computed Tomography (CT) and how it relates to the clinical applications for both adults and children. This class introduces the foundation for the practice of CT scanning. This class will also cover radiation dose and quality control.

**CATX 102 Cross Sectional Anatomy I**  
**3 Credits**  
Prerequisite: Advisor Approval. Introduces the student to cross-sectional anatomy. Covers the terminology related to sectional anatomy. Discusses different planes of the body and associate them with the quality of images that will be encountered in clinical practice. Covers the difference between all post processing options. Covers anatomy in cross sectional plane and all structures and functions pertaining to the related anatomy. Discusses common pathologies related to the anatomy presented.

**CATX 103 CT Clinical Education I**  
**2 Credits**  
Prerequisites: Advisor Approval. Through various clinical sites the student will acquire competency in the field of computed tomography. During the clinical rotation, the student is required to use the knowledge acquired in the cognitive domain to display appropriate behavior in the affective domain and to build skills in the psychomotor domain. This is accomplished by scanning actual patients under controlled conditions.

**CATX 201 Physical Principles and Quality Control II**  
**3 Credits**  
Prerequisite: CATX 101. This class will conclude on previous class the physical principles of Computed Tomography (CT) in regards to volume scanning (sagittal/helical CT) and the fundamentals of volume scanning. Discusses advances in spiral CT and 3D CT and impact on patients.

**CATX 202 Cross Sectional Anatomy II**  
**3 Credits**  
Prerequisite: CATX 102. This class builds on the prior class and discusses 3D images in more depth. It will cover the difference between all post processing options. The class covers anatomy in the thorax, abdomen, pelvis and extremities as well as CT angiography in cross sectional plane and all structures and functions pertaining to the related anatomy. Discusses common pathologies related to the anatomy presented.

**CATX 203 CT Clinical Education II**  
**3 Credits**  
Prerequisites: Acceptance into CT program. This is the second of two rotations through either one or various clinical sites to allow the student to acquire competency in the field of computed tomography. During the clinical rotations the student is required to use the knowledge acquired in the cognitive domain to display appropriate behavior in the affective domain and to build skills in the psychomotor domain. This is accomplished by scanning actual patients under controlled conditions.

**CHEM 061 Basic Chemistry**  
**3 Credits**

**CHEM 101 Introductory Chemistry**  
**Transfer IN 3 Credits**  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and MATH 050 or MATH 015 or MATH 023. Provides students with an introduction to chemistry basics. Provides instruction for students with little or no recent chemistry background, especially those desiring to continue in more advanced chemistry courses or other science courses. Includes lab.

**CHEM 110 General Chemistry I**  
**Transfer IN 3 Credits**  
Prerequisites: MATH 101 or demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 035 or MATH 043 and ENGL 025 and MATH 030. A two-semester introductory course that includes the science of chemistry and measurement, atomic theory and the periodic table, chemical bonding, equation writing and balancing, stoichiometry, and gases. Includes lab.

**CHEM 110 General Chemistry II**  
**Transfer IN 5 Credits**  
Prerequisites: CHEM 101 or MATH 103 or MATH 103 or MATH 133. The second in a series of two introductory courses designed to cover general chemistry including measurement, atoms, molecules and ions, stoichiometry, chemical reactions, solids, liquids, and gases, thermodynamics, atomic structure, and molecular bonding. Includes lab. One year of high school chemistry or one semester of college introductory chemistry is recommended.

**CHEM 111 Chemistry I**  
**4 Credits**  
Prerequisites: MATH 111 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 035 or MATH 043 and ENGL 025 and MATH 030. A two-semester introductory course that includes the science of chemistry and measurement, atomic theory and the periodic table, chemical bonding, stoichiometry, liquids and solids, gases and the ideal gas law, solutions, and acids and bases. Includes lab.

**CHEM 112 Chemistry II**  
**4 Credits**  
Prerequisites: CHEM 111 or CHEM 110. Explores concepts of equilibrium. Includes chemistry of metals and nonmetals, environmental chemistry, nuclear chemistry, organic and biochemistry. Includes lab.

**CHEM 113 Introductory Organic Chemistry**  
**Transfer IN 3 Credits**  
Prerequisites: CHEM 101 or CHEM 111. Basic principles of organic and biochemistry are discussed, including concepts of nomenclature and reaction equations that are necessary for understanding biochemistry. The ability to name and draw chemical structures and to write reactions for organic equations will be evaluated. Elements of biochemistry will include the analysis of biochemical structures and the reactions involved in the metabolic processes. Includes lab.

**CHEM 204 Lectures in Organic Chemistry**  
**3 Credits**  
Prerequisites: CHEM 106 A one-semester survey course designed to introduce organic chemistry including nomenclature, spectroscopy, stereochemistry, reactions, and mechanisms.

**CHEM 211 Organic Chemistry I**  
**5 Credits**  
Prerequisites: CHEM 106. The first in a series of two courses designed to cover organic chemistry including the properties, syntheses, and reactivity of aliphatic and aromatic compounds. The course includes an introduction to organic chemistry lab techniques covering the synthesis, purification, and characterization of organic compounds. Includes lab.

**CHEM 212 Organic Chemistry II**  
**5 Credits**  
Prerequisites: CHEM 211. The second in a series of two courses designed to cover an understanding of organic chemistry including the properties, syntheses, and reactivity of aliphatic and aromatic compounds, polyfunctional natural products such as carbohydrates, and peptides. The course includes various organic chemistry lab techniques covering the synthesis, purification, and characterization of organic compounds. Includes lab.

**CHMT 101 Industrial Laboratory Techniques**  
**3 Credits**  
Prerequisites: None. Introductory course dealing with basic skills needed in the industrial laboratory such as basic lab safety, identification, care and operation of basic laboratory equipment including pH meters, spectrophotometers, glassware, and definition and preparation of reagents. Includes laboratory exercises in the use of selected equipment. Includes lab.

**CHMT 170 Success in Science**  
**1 Credit**  
Prerequisites: None. Introductory course covers basics of the chemical process industry including career paths, business components and ethical standards. Scientific literature searches and safety issues are discussed.

**CHMT 201 Industrial Instrumentation and Techniques I**  
**3 Credits**  
Prerequisites: CHMT 101 and CHEM 101. Addresses theoretical
aspects of industrial laboratory instrumentation, including gas and liquid chromatography (GC and LC), high performance liquid chromatography (HPLC), infra-red (IR) spectrophotometry and atomic absorption (AA). Presents theories and laws that govern the way instruments operate. Includes student experimentation on various analytical instruments. Includes lab.

CHMT 202 Industrial Instrumentation 3 Credits and Techniques II
Prerequisites: CHMT 201. Continues the theoretical study of CHMT 201 by addressing industrial applications of laboratory instrumentation, including gas and liquid chromatography (GC and LC), high performance liquid chromatography (HPLC), infra-red (IR) spectrophotometry and atomic absorption (AA). Presents automation techniques, including sampling, data collection and analysis. Covers the laws that govern the way instruments operate. Includes student experimentation on various analytical instruments. Includes lab.

CHMT 204 Presentation of Technical Issues 3 Credits
Prerequisites: Program Advisor Approval. Focuses on solving problems in chemical technology settings including the analysis of the problem, generation of creative solutions and effective presentation of proposed solutions. Includes lab.

CHMT 207 Food, Drugs and Polymers 3 Credits
Prerequisites: CHEM 102 and CHMT 101. A survey course designed for advanced students, this course covers the basics of Food Science, Polymer Science and Pharmaceutics. Includes lab.

CHMT 210 Quantitative Analysis 3 Credits
Prerequisites: CHEM 101 and CHEMT 102. Investigates techniques for quantitative analysis of samples including their applications in industrial settings. Includes techniques such as gravimetric analysis, neutralization, oxidation-reduction titrations, potentiometric measurements and complexing titrations. Includes lab.

CHMT 270 Professional Development 1 Credit
Prerequisites: CHMT 101. Designed to be taken the semester before students begin looking for a job. Its purpose is to help students with the professional skills required in scientific industries.

CHMT 280 Internship 3 Credits
Prerequisites: Program Advisor Approval. Students work at a job site that is specifically related to his/her career objectives. Provides extensive job experience while earning credit towards an associate degree. Students will also participate in a once a week seminar.

CIMG 102 Introduction to Robotics 3 Credits
Prerequisites: None. Corequisite:TEC 104. Introduces students to robotics and automated systems and their operating characteristics. Covers robotics principles of operation and work envelopes. Teaches coordinate systems and how hydraulic, pneumatic and electromechanical systems function together. Covers servo and non-servo controls, system capabilities and limitations and safety.

CIMG 202 Work Cell Design and Integration 3 Credits
Prerequisites: CIMG 102. An advanced course which provides instruction in selecting equipment, writing specifications, designing fixtures and interconnects, integrating systems, providing interfaces and making the assigned systems operational.

CIMG 203 Automation Electronics 3 Credits
Prerequisites: ENGD 205. Interface Programmable Controllers (PLCs) with analog I/O devices. Tune Proportional Integral Derivative (PID) loops. Analyze 4-20 mA current circuitry of a thermal process. Achieve process control with PLC analog input/output controls using a human machine interface. Program on-line and off-line via PLC networking.

CIMG 205 Automated Manufacturing Systems 3 Credits
Prerequisites: CIMG 202 and CIMG 203. Covers basic principles and applications for planning and controlling production operations and improvement programs. Includes system characteristics and solutions for production process and service operation problems; methods analysis; cost estimating; facilities planning, tooling and services acquisition and maintenance; production, project and program scheduling; materials and inventory management; safety and loss prevention; decision-making tools and evaluation of alternatives.

CINS 074 Computer Literacy 3 Credits
Prerequisites: None. Provides a general survey of computer basics. Includes the survey and analysis of microcomputer components, compares and contrasts computer applications, investigates software options, expose students to hardware peripherals and introduces students to Windows and office applications.

CINS 100 Using Windows Environment 1 Credit
Prerequisites: None. Introduces the basic concepts of Windows and Windows-based applications. The student will acquire the necessary concepts for accomplishing the most commonly used tasks, such as creating folders, copying, deleting and moving files from one folder to another or from a folder to an auxiliary storage medium. The student will also be introduced to Windows applications. The course includes Internet and e-mail operation and an introduction to simple word processing and spreadsheet applications.

CINS 101 Introduction to Transfer IN 3 Credits
Prerequisites: CIMG 101. Demonstrated competency through appropriate assessment or earning a grade of "C" or better in INGL 031. Introduces the physical components and operation of microcomputers. Focuses on computer literacy and provides hands-on training in four areas of microcomputer application software: word processing, electronic spreadsheets, database management and presentation software. Use of a professional business integrated applications package is emphasized.

CINS 102 Information Systems Fundamentals 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in INGL 031. Introduces information processing and programming with emphasis on hands-on computer experience. Examines the role of information processing in an organization including information processing applications, computer hardware and software, internal data representation, stored program concepts, systems and programming design, flowcharting and data communications. Reviews the history of computers, related computer careers, the social impact of computers, and computer security.

CINS 107 Microcomputer Programming 3 Credits
Prerequisites: CINS 102. Corequisite: CINS 113. Introduces a structured microcomputer language. Concepts in input/output commands, arithmetic expressions, conditional control, iteration techniques and subroutines will be stressed. Concepts will be incorporated into the application of solving business problems.

CINS 111 Computer Business Applications 3 Credits
Prerequisites: CINS 125 and COMM 101 or CINS 125 and COMM 102. Corequisites: CINS 203. Requires students to apply business, microcomputer and communication skills within business applications. Emphasizes application of several forms of computerized information processing including data processing, word processing, spreadsheets, graphics and communications. Analyzes the effects of automation on the office worker, management, and the work environment, and requires written and oral presentations.

CINS 112 Introduction to Simulation and Game Development 3 Credits
Prerequisites: CINS 113. Provides a basic understanding of the fundamentals of creating simulation and game design and programming. Discussions will include use for simulations and game programming, using game libraries, and interfaces used in programming. This course focuses on 2D simulations and games which include many real-time and turn-based strategy games.

CINS 113 Logic, Design and Programming 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in INGL 031. Introduces the structured techniques necessary for efficient solution of business-related computer programming logic problems and coding solutions into a high-level language. Includes program flowcharting, pseudocoding, and hierarchy charts as a means of solving these problems. The course covers creating file layouts, print charts, program narratives, user documentation, and system flowcharts for business problems. Reviews algorithm development, flowcharting,
input/output techniques, looping, modules, selection structures, file handling, object-oriented programming, menu systems and graphical user interfaces. Offers students an opportunity to apply skills in a laboratory environment.

**CINS 114 Principles of Management Information Systems**  
3 Credits  
Prerequisites: CINS 102 and BUSN 101. Examines the functions and operations required to manage information for business decisions. Focuses on the use of various information technologies and tools that support transaction processing, decision-making and strategic planning. The diverse information needs of different organizations within a business will be used as examples of practical applications of MIS technology.

**CINS 118 Introduction to COBOL Programming**  
3 Credits  
Prerequisites: Program Advisor Approval. Provides an introduction to COBOL (Common Business Oriented Language) with major emphasis on developing structured programming skills. Develops proficiency in applying the programming development cycle to elementary business problems.

**CINS 121 C/C++/C# Programming**  
3 Credits  
Prerequisites: CINS 113. Provides a basic understanding of the fundamentals of procedural program development using structured, modular concepts. Emphasizes logical program design involving user-defined functions and standard structure elements. Discussions will include the role of data types, variables, structures, addressable memory locations, arrays and pointers. Data file access methods are also presented.

**CINS 122 RPG Programming Fundamentals**  
3 Credits  
Prerequisites: CINS 102 and CINS 113. Provides a general introduction to the RPG programming language with emphasis on hands-on programming experience. Presents the most important features of the RPG language from input/output processing to applications requiring handling. Introduces language concepts in class lecture. Includes programming lab assignments.

**CINS 123 Assembler Language Programming**  
3 Credits  
Prerequisites: CINS 102 and CINS 113. Gives students a basic understanding of the assembler process using IBM mainframe computers. Stresses the importance of byte-wise manipulation of data fields when using low-level languages. Emphasizes the actual workings of a computer during the execution of a computer program. Discusses the role of data types, EBCDIC format of data storage and addressable memory locations.

**CINS 124 Pascal Programming**  
3 Credits  
Prerequisites: CINS 113. Provides a basic understanding of the structured programming process necessary for successful Pascal programming. Emphasizes top-down program design and modularity using Pascal procedures, functions and independent subprograms. Discuss simple and advanced data types and program control aids, algorithm development and program debugging. Provides students with a fundamental understanding of good programming technique and a basic knowledge of Pascal syntax and structure.

**CINS 125 Database Design and Management**  
3 Credits  
Prerequisites: Demonstrated computer proficiency through appropriate assessment or successful completion of CINS 101. Introduces program applications in a database environment and includes discussion of data structures; indexed and direct file organizations; data models, including hierarchical, network, and relational; storage devices, data administration and analysis; design and implementation. Using database software, students have hands-on experience creating, modifying, retrieving and reporting from databases. Students may also develop a business application using a database language.

**CINS 126 Shell Command Language for Programmers**  
3 Credits  
Prerequisites: CINT 109 or CINT 201. Teaches students how to write, test and debug shell procedures on a computer utilizing a UNIX operating system. Presents the shell and how it works, shell processes, variables, keyword and positional parameters, control constructs, special substitutions, pipelines, debugging aids, error/interrupt processing and shell command line. Offers students the opportunity to apply skills in a laboratory environment.

**CINS 127 Midrange/Mainframe Database Management Systems**  
3 Credits  
Prerequisites: Demonstrated computer proficiency through appropriate assessment or successful completion of CINS 101 and CINS 102. Presents an overview of relational database models with emphasis on midrange/mainframe management systems (DBMS). Using a variety of database tools, the student receives practical experience in creating, modifying, retrieving and reporting from databases. Students also develop business applications using the database language.

**CINS 130 Seminar I**  
1 Credit  
Prerequisites: Program Advisor Approval. Discusses topics of current interest in computerized information management with emphasis on applications of information management skills during lab time. Identifies and offers various seminar topics each term under this course number.

**CINS 131 Structured Query Language**  
3 Credits  
Prerequisites: CINS 125 or CINS 127. SQL is now a dominant language used in mainframe, mini, and microcomputer databases (Access, dBASE, paradox, DB2, FoxPro, Oracle, SQL Server, and Btrieve) by diverse groups such as home computer owners, small businesses, large organizations, and programmers. It acts as a bridge between the user, the database management system, the data tables and transactions involving all three.

**CINS 132 Graphical User Interface: Windows**  
3 Credits  
Prerequisites: Program Advisor Approval. Provides a foundation of fundamental concepts in the use of GUI - type software. Explores the Windows operating system, accessories, and various operating system applications. Develops proficiency with Windows operations including customizing the environment, integrating operating systems applications, and managing files.

**CINS 136 Introduction to Java Programming**  
3 Credits  
Prerequisites: CINS 113. Provides a basic understanding of the fundamental concepts involved when using a member of a Java programming development language. The emphasis is on logical program design using a modular approach involving task oriented program functions. Java allows the design of an Internet user interface. The application is built by selecting forms and controls, assigning properties and writing code.

**CINS 137 Visual Basic Programming**  
3 Credits  
Prerequisites: CINS 113. A basic understanding of the fundamental concepts involved when using a member of a Windows programming development language. The emphasis is on logical program design using a modular approach involving task oriented program functions. Visual Basic applications are built by selecting forms and controls, assigning properties, and writing code.

**CINS 139 Introduction to Computer Forensics**  
3 Credits  
Prerequisites: CINS 101 and CINT 106. Presents an overview of computer forensics used in corporate and criminal investigations. Digital forensics professionals work both in computer network security and in the investigation of crimes involving the use of computers and networks. This course presents methods and software used to properly conduct a computer forensics investigation.

**CINS 151 Integrated Business Software**  
3 Credits  
Prerequisites: Demonstrated computer proficiency through appropriate assessment or successful completion of CINS 101. Presents knowledge of integrated microcomputer software concepts. Students design a complete business system utilizing all parts of an integrated microcomputer software package which can share the same data and manipulate it. Includes use of word processing, electronic spreadsheets, graphics, databases and command languages.

**CINS 157 Web Site Development**  
3 Credits  
Prerequisites: CINS 101 or CINS 102. There is a combination of technical and non-technical skills required in those interested in Web site development. The range of skills includes those required for a designer, a developer, and an administrator. Course provides a basic understanding of the essential Web development skills and business practices that directly relate to Internet technologies used in Web site development. Course provides the basic knowledge required to sit for the CIW Site Development Foundations certification exam.
CINS 203 Systems Analysis and Design  
3 Credits  
Prerequisites: Minimum of 21 CINS and/or CINT credits successfully completed. In this course the student will learn methodologies pertinent to the assessment, design and implementation of business computer information systems.

CINS 205 Database Design  
3 Credits  
Prerequisites: CINS 125. Introduces program applications in a database environment with emphasis on loading, modifying, querying the database by means of a host language. Discusses data structures; index and direct file organizations; models of data, including hierarchical, network and relational; storage philosophies, data administration and analysis; design; and implementation.

CINS 206 Project Development with High-Level Tools  
3 Credits  
Prerequisites: Program Advisor Approval. Analyzes established and evolving methodologies for the development of business-oriented computer information systems. Develops competencies in techniques that apply modern software tools to generate applications directly, without requiring detailed and highly technical program writing efforts.

CINS 215 Field Study  
1-4 Credits  
Prerequisites: None. A field study class is comparable to on-the-job training activities directly related to the CIS program of study. This must be approved by the program chair and the student must be in his/her last semester. A student must have a GPA of 3.0 to apply for this study position.

CINS 218 Advanced COBOL Programming  
3 Credits  
Prerequisites: CINS 118. Continues topics introduced in CINS 104 with more logically complex business problems. Develops a higher level of COBOL proficiency as well as greater familiarity with debugging techniques. Uses the structured approach through class instruction and laboratory experience.

CINS 221 Advanced C/C++/C# Programming  
3 Credits  
Prerequisites: CINS 212. Continues those topics introduced in C Language Programming with emphasis on array processing, advanced debugging techniques, dynamic memory allocation, and classes. Introduces Windows programming in C++ using MFC. Provides the opportunity to apply skills in a laboratory environment. Students will be introduced to Object Oriented Design and Programming concepts using C++ language features. Differences between C++ and classical C programming will be addressed.

CINS 222 Advanced RPG Programming  
3 Credits  
Prerequisites: CINS 122. Offers advanced study in the use of RPG compiler language in solving business problems. Focuses on the file processing methods and a working knowledge of advanced features and techniques through laboratory experience.

CINS 225 Advanced Database Management  
3 Credits  
Prerequisites: CINS 201 or CINS 207. Emphasizes successful completion of CINS 202. A fundamental course that introduces students to computer design graphic software. The focus of the course is on understanding basic computer graphics terminology, the mastery of fundamental photo editing and basic design skills and development of efficient working styles.

CINS 227 Topics in Information Management  
3 Credits  
Prerequisites: CINS 114. Discusses topics of current interest in information management. Includes examples from production, operations, accounting, finance, marketing, sales and human resources. Focuses on special interest projects. Utilizes field trips, guest speakers, audio-visual activities and seminars.

CINS 230 Seminar II  
2 Credits  
Prerequisites: Program Advisor Approval. Discusses topics of current interest in computerized information management with emphasis on applications of information management skills during lab time. Identifies and offers various seminar topics each term under this course number.

CINS 236 Advanced Java Programming  
3 Credits  
Prerequisites: CINS 136. Continues those topics introduced in CINS 136 with emphasis on arrays, graphics, inheritance, the Abstract Windows Toolkit (AWT), using layout managers, and other various Java tools and concepts. Provides the opportunity to apply skills in a laboratory environment.

CINS 237 Advanced Visual Basic Programming  
3 Credits  
Prerequisites: CINS 137. Continues those topics introduced in CINS 132. The emphasis is on data file design, data handling, database access, ActiveX, menus, variable arrays, and Visual Basic. Students will use advanced features to increase their level of proficiency in developing Visual Basic applications.

CINS 238 Advanced Simulation and Game Development  
3 Credits  
Prerequisites: CINS 112. Includes in-depth discussions on creating 2D and 3D simulations and games using game libraries, timers, interrupt handlers, and multi-threading.

CINS 239 Advanced Computer Forensics  
3 Credits  
Prerequisites: CINS 139. Discusses the topics learned in CINS 139, Introduction to Computer Forensics. Incidents of computers being used in the commission of crimes is increasing, making this a particularly high-demand field. This course presents advanced methods to properly conduct a computer forensics investigation for both criminal and corporate cases.

CINS 253 Graphical Image Lab  
3 Credits  
Prerequisites: CINS 102. A fundamental course that introduces students to computer design graphic software. The focus of the course is on understanding basic computer graphics terminology, the mastering of fundamental photo editing and basic design skills and development of efficient working styles.

CINS 257 Advanced Web Site Development  
3 Credits  
Prerequisites: CINS 157. There is a combination of technical and non-technical skills required for those interested in Web site development. The range of skills includes those required for a designer, developer, and administrator. This course provides a basic understanding of the essential Web designer skills including a review of site development essentials, an in-depth analysis of Web design elements, basic Web technologies, and advanced Web technologies. This course provides the basic knowledge required to sit for the CIW Site Designer certification exam.

CINS 258 Web Applications Programming  
3 Credits  
Prerequisites: CINS 157. This course will provide a basic understanding of the fundamental concepts involved in designing applications with a server-side programming language and an SQL database. There is an emphasis on logical program design using a modular approach involving task oriented program functions. Students will receive hands-on experience creating, modifying, retrieving and reporting from databases. Students will also develop a business application using a Web-oriented programming language and SQL.

CINS 259 Web Administration  
3 Credits  
Prerequisites: CINS 157, CINT 121, CINT 201. Provides the basics covered in the CIW Server Administrator Certification Exam. Students will learn to configure and manage corporate Internet and intranet infrastructure, monitor and tune Web, FTP, news and mail servers, and deploy e-business solutions servers for midsize to large businesses.

CINS 279 Capstone Course  
1 Credit  
Prerequisites: Program Advisor Approval. Prepares the student for entry into the Information world. Reviews procedures for interviewing, team participation, and ethical and productive job performance. Provides for taking program outcomes assessments.

CINS 280 Co-op/Internship  
1-6 Credits  
Prerequisites: Program Advisor Approval. Provides students with the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit toward an associate degree. Fourth semester standing and a cumulative GPA of 2.0 or better is recommended for Internship students.

CINT 105 Operating Systems  
3 Credits  
Prerequisites: Demonstrated computer proficiency through appropriate assessment or successful completion of CINS 101. Studies of computer operating systems, purposes, structure and various functions. Provides a general understanding of how comprehensive sets of language translators and service programs, operating under supervisory coordination of an integrated control program, form the total operating systems of a computer.
CINT 106 Microcomputer Operating Systems 3 Credits
Prerequisites: Demonstrated computer proficiency through appropriate assessment or successful completion of ENGL 031. Corequisite: CINT 121. Introduces the organization, structure, functions, and peripheral devices of a microcomputer system. Introduces operating system concepts such as commands, error messages, interrupts, function calls, device drivers, structure, files and organization. Incorporates concepts into practical applications.

CINT 109 UNIX Operating Systems 3 Credits
Prerequisites: CINT 106. Studies the UNIX operating system and its use as a time-sharing operating system. Includes basic UNIX commands, use of the visual editor, the UNIX directory structure and file management with SHELL commands. Offers opportunities to apply skills and knowledge in a laboratory environment.

CINT 110 Hardware and Software Troubleshooting 3 Credits
Prerequisites: CINT 106. Presents an in-depth analysis of the components of a computer system and their relationship to each other. Includes concepts of parallel and serial connectivity, installation and maintenance of software, peripheral devices, interface cards, and hardware. The student will analyze realistic hardware/software problems encountered in the workplace and learn techniques and procedures to implement solutions.

CINT 120 Data Communications 3 Credits
Prerequisites: CINT 102. Introduces the evolution of telecommunication and its affect on data communication systems. Topics covered will include the basic components of a communications system, a study of electrical signals used to represent data, the importance of error control when transmitting information, and the functions of network systems and their role in the communication of information. Students will also have an opportunity to explore data communications topics through research.

CINT 121 Network Fundamentals 3 Credits
Prerequisites: None. Corequisite: CINT 106. A study of local area networks, their topologies and their functions and provides a general understanding of the basic LAN protocols. Topics covered include: fundamental concepts and terminology, the IEEE/IS0 Logical Link Control standard, construction of a LAN, and LAN data links for Internet networks.

CINT 125 Windows Client Operating System 3 Credits
Prerequisites: CINT 106. Provides instruction to demonstrate ability to implement, administer, and troubleshoot information systems that incorporate Microsoft Windows. Course is designed to familiarize students with the Windows environment and related Windows components. Concepts will be incorporated into practical applications.

CINT 135 Novell Administration I 3 Credits
Prerequisites: CINT 121. Introduces the organization, structure, functions, and administration of a network operating system. The course is designed to train the student in administration of a local area network. Presents network operating system concepts such as file and shared printing, data protection, application installation, and electronic messaging. Concepts will be incorporated into practical applications.

CINT 136 Novell Advanced Administration 3 Credits
Prerequisites: CINT 135. Provides a knowledge of the skills needed to design, configure, and administer a complex network. The course is designed to provide students with an advanced skill set.

CINT 140 Cisco Discovery: Networking for Home and Small Businesses 4 Credits
Prerequisites: CINT Program Advisor Approval. The goal of this course is to introduce you to fundamental networking concepts and technologies. This course provides a hands-on introduction to networking and the Internet using tools and hardware commonly found in the home and small business environment. These online materials will assist in developing the skills necessary to plan and implement small networks across a range of applications. This course prepares you with the skills needed to obtain entry-level Home Network Installer jobs. It also prepares you for some of the skills needed for Network Technician, Computer Technician, Cable Installer, and Help Desk Technician jobs.

CINT 141 Cisco Discovery: Working at a Small to Medium Business or ISP 4 Credits
Prerequisites: CINT 140 or CINT Program Advisor Approval. The goal of this course is to assist students in developing the skills necessary to provide customer support to users of small-to-medium-sized networks and across a range of applications. The course provides an introduction to routing and remote access, addressing and network services. It will also familiarize students with servers providing email services, web space, and authenticated access. This course prepares students with the skills required for entry-level Help Desk Technician and entry-level Network Technician jobs.

CINT 160 Cisco Exploration: Network Fundamentals 4 Credits
Prerequisites: CINT Program Advisor Approval. The focus of this course is on learning the fundamentals of networking. In this course, students learn both the practical and conceptual skills that build the foundation for understanding basic networking. These include networking communication concepts, and the parallels between them are presented. Students are introduced to two major models used to plan and implement networks: OSI and TCP/IP. The OSI and TCP/IP functions and services are examined in detail. Various network devices, network addressing schemes and the types of media used to carry data across the network are also presented.

CINT 161 Cisco Exploration: Routing Protocols and Concepts 4 Credits
Prerequisites: CINT 160 or CINT Program Advisor Approval. The primary focus of this course is on routing and routing protocols. The goal is to develop an understanding of how a router learns about remote networks and determines the best path to those networks. This course includes both static routing and dynamic routing protocols. By examining multiple routing protocols, students will gain a better understanding of each of the individual routing protocols and a better perspective of routing in general. Developing an understanding of routing concepts is critical for implementing, verifying, and troubleshooting routing operations.

CINT 170 Seminar I 1 Credit
Prerequisites: Program Advisor Approval. Discusses topics of current interest in computerized information management with emphasis on applications of information management skills during lab time. Identifies and offers various seminar topics each term under this course number.

CINT 201 Advanced Operating Systems: UNIX 3 Credits
Prerequisites: CINT 106. Studies advanced topics in operating systems as they apply to networking applications. Provides data relating to the different types of operating systems including workstation and server. This course will provide the necessary information in preparation for the CompTIA Linux+ Certification Exam.

CINT 210 PC Technology Essentials 3 Credits
Prerequisites: CINT 106. Includes identification of basic terms, concepts and functions of system modules, and basic procedures for adding and removing field replaceable units. Reviews of portable system components, identification of system resources, and other detailed information concerning PC architecture, hardware and standards. Includes identification of basic terms, concepts and function of operating systems in microcomputers and basic procedures for installation, upgrade and utilization. Reviews of basic concepts and procedures for creating, viewing, and managing files, using utility programs and understanding normal operation and symptoms relating to common problems.

CINT 211 IT Technician 3 Credits
Prerequisites: CINT 210. Includes the understanding of more advanced PC terminology, concepts, functions of system modules, and more complex procedures for troubleshooting issues regarding PCs. Includes analysis of portable system components, an indepth study of system resources, and other detailed information concerning PC architecture, hardware, software, and standards. Includes a more sophisticated study of advanced terminology, concepts and functions of systems software in microcomputers and basic proce-
In addition it deals with site preparation, performance monitoring, and disaster recovery. The course provides support and guidance for preparation of the student to take the Server+ certification exam, a COMPTIA vendor neutral test which can apply to Microsoft’s MCSA, or stand on its own merit. This course contains elements above basic hardware fundamentals of a standard PC and so the certification is considered more advanced than the A+. In addition, this course deals with Industry Standard Server Architecture (ISSA) issues, such as RAID, SCSI, multiple CPUs, SANs and other networking server issues.

CINT 225 Windows Network Operating Systems 3 Credits
Prerequisites: CIST 120 or CINT 121. Provides instruction to demonstrate the ability to implement, administer, and troubleshoot information systems that incorporate Microsoft Windows Server.

CINT 226 Implementing and Administering a Windows Network Infrastructure 3 Credits
Prerequisites: CINT 125 or CINT 225. Provides instruction to demonstrate the ability to install, manage, monitor, configure, and troubleshoot DNS, DHCP, Remote Access, Network Protocols, IP Routing, and WinDS in a Windows network infrastructure. In addition, this course builds the skills required to manage, monitor, and troubleshoot Network Address Translation and Certificate Services. This course is designed to follow a preparation path towards the appropriate Microsoft certification series.

CINT 227 Managing a Windows Network 3 Credits
Prerequisites: CINT 125 or CINT 225. Provides instruction to demonstrate the ability to administer, support, and troubleshoot information systems that incorporate Microsoft Windows. This course is designed to follow a preparation path towards the appropriate Microsoft certification series.

CINT 228 Administering Windows Directory Services 3 Credits
Prerequisites: CINT 225. Provides instruction to demonstrate the ability to install, configure, and troubleshoot the Windows Active Directory® components, DNS for Active Directory, and Active Directory security solutions. In addition, this test measures skills required to manage, monitor, and optimize the desktop environment by using Group Policy. Course is designed to follow a preparation path towards the Microsoft exam 70-217: Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure.

CINT 235 Networking Technology Concepts 3 Credits
Prerequisites: CINT 121. Provides students with an excellent foundation upon which to build their network training. The course covers the basics of computer networking, including terms and concepts. Networking technology—how it works, and why it works—is made clear in this course, where concepts like contemporary network services, transmission media, and protocols are explained. Students learn how protocols are used in networking implementations from many vendors, especially those most common in today’s LANs and WANs.

CINT 236 Novell Hardware Service and Support 3 Credits
Prerequisites: CINT 135. Focuses on the prevention, diagnosis, and resolution of hardware-related problems encountered when working with NetWare. While the course assumes the use of NetWare, the skills learned will have a great deal of practical value to network administrators as they optimize and maintain systems while using many other Novell products. The course explores a number of research tools that will assist the network administrator in acquiring the information needed to solve "real-world" problems. It includes extensive hands-on exercises, which make up approximately 60% of all class time. The course materials are designed to provide a continuing reference that will be useful back at the student’s workplace.

CINT 237 Novell Administration III 3 Credits
Prerequisites: CINT 135. How to design and implement Novell eDirectory trees and related components in any type of organization for different types of organizational goals using different types of network operating systems.

CINT 240 Cisco Discovery: Introducing Networking and Switching in the Enterprise 4 Credits
Prerequisite: CINT 141 or CINT Program Advisor Approval. The goal of this course is to assist students in developing the skills necessary to use protocols to maximize enterprise LAN and WAN performance. The course provides more advanced configurations of switching and routing protocols, configuration of access control lists, and basic implementation of WAN links. It also provides detailed troubleshooting guidance for LAN, WAN, and VLAN implementations. This course prepares students with the skills required for entry-level Network Technician, Help Desk Technician, and Computer Technician jobs.

CINT 241 Cisco Discovery: Designing and Supporting Computer Networks 4 Credits
Prerequisite: CINT 240 or CINT Program Advisor Approval. The goal of this course is to assist students in developing the skills necessary to design small Enterprise LANs and WANs. The course provides an introduction to collecting customer requirements, translating those requirements into equipment and protocol needs, and creating a network topology which addresses the needs of the customer. It will also familiarize students with how to create and implement a design proposal for a customer. This course prepares students with the skills required for entry-level Pre-Sales Support and entry-level Network Design jobs.
CINT 251 Introduction to Systems Security 3 Credits
Prerequisites: CINT 121 and CINT 225. Provides a fundamental understanding of network security principles and implementation. The student will learn the technologies used and principles involved in creating a secure computer networking environment including authentication, the types of attacks and malicious code that may be used against a network, the threats and countermeasures for e-mail, web applications, remote access, and file and print services.

CINT 252 Routers and Firewalls 3 Credits
Prerequisites: CINT 251. Provides a basic understanding of the fundamental concepts involved in firewalls, intrusion detection and VPNs. This course prepares students to take the Check Point certification test 156-210.4 (Check Point Certified Security Administrator NG, Management I).

CINT 253 Microsoft Network Security 3 Credits
Prerequisites: CINT 125, CINT 225, and CINT 227. This course teaches the fundamentals of implementing and administering security on Windows Server 2003 networks. This course will provide instructors to demonstrate the ability to implement, administer, and troubleshoot information systems that incorporate Microsoft Windows Server. This course is designed to follow a preparation path towards the Microsoft exam 70-298 Designing Security for a Microsoft Server 2003 Network.

CINT 254 Linux/Networking Security 3 Credits
Prerequisites: CINT 201 or Program Advisor Approval. Introduces concepts of security for Linux servers for computer servers to build a foundation of knowledge about server systems and server applications security.

CINT 260 Cisco Exploration: LAN Switching and Wireless 4 Credits
Prerequisite: CINT 161 or CINT Program Advisor Approval. The primary focus of this course is on LAN switching and wireless LANs. The goal is to develop an understanding of how a switch communicates with other switches and routers in a small- or medium-sized business network to implement VLAN segmentation. This course covers the Layer 2 switching protocols and concepts used to improve redundancy, propagate VLAN information, and secure the portion of the network where most users access network services. This course goes to great lengths to explain the underlying processes of the common Layer 2 switching technologies.

CINT 261 Cisco Exploration: Accessing the WAN 4 Credits
Prerequisite: CINT 260 or CINT Program Advisor Approval. The primary focus of this course is on accessing wide area networks (WAN). The goal is to develop an understanding of various WAN technologies to connect small- to medium-sized business networks. The course introduces WAN converged applications and quality of service (QoS). It focuses on WAN technologies including PPP, Frame Relay, and broadband links. WAN security concepts are discussed in detail, including types of threats, how to analyze network vulnerabilities, general methods for mitigating common security threats and types of security appliances and applications. The course then explains the principles of traffic control and access control lists (ACLs) and describes how to implement IP addressing services for an Enterprise network, including how to configure NAT and DHCP. IPv6 addressing concepts are also discussed. During the course, students will learn how to use Cisco Router and Security Device Manager (SDM) to secure a router and implement IP addressing services. Finally, students learn how to detect, troubleshoot and correct common Enterprise network implementation issues.

CINT 263 Cisco IP Telephony 3 Credits
Prerequisites: CINT 161 or CINT 240. Course content will focus on topics and lab activities surrounding voice and data convergence. IP Telephony will focus on entry level skills required to implement IP Telephony in a SOHO environment.

CINT 270 Seminar II 2 Credits
Prerequisites: Program Advisor Approval. Discusses topics of current interest in computerized information management with emphasis on applications of information management skills during lab time. Identifies and offers various seminar topics each term under this course number.

CINT 271 Field Study 3 Credits
Prerequisites: None. A field study class is comparable to the on-the-job training activities directly related to the CINT program of study. This must be approved by the program chair and the student must be in his/her last semester. A student must have a GPA of 3.0 to apply for this study position.

CINT 272 Cisco Wireless LANs 3 Credits
Prerequisite: CINT 260 or Program Advisor Approval. This introductory course to Wireless LANs focuses on the design, planning, implementation, operation and troubleshooting of Wireless LANs. It contains a comprehensive overview of technologies, security, and design best practices with particular emphasis on hands on skills.

CINT 274 Wireless Network Administrator 3 Credits
Prerequisite: None. This course includes the understanding of the fundamentals of RF behavior, ability to describe the features and functions of wireless LAN components, and knowledge of the skills needed to install, configure, and troubleshoot wireless LAN hardware peripherals and protocols.

CINT 275 Cisco Network Security 3 Credits
Prerequisite: CINT 261 or Program Advisor Approval. The Fundamentals of Network Security course focuses on the overall security process based on a security policy with an emphasis on hands-on skills in the areas of secure perimeter, secure connectivity, security management, identity services, and intrusion detection. This course prepares students to take the Cisco 642-502 SNRS (Securing Networks with Cisco Routers and Switches) and the Cisco 642-522 SNPA (Securing Networks with PIX and ASA) Exams.

CINT 279 Capstone Course 1 Credit
Prerequisite: Program Advisor Approval. Prepares the student to enter into the Information World. Reviews procedures for interviewing, team participation, and ethical and productive job performance. Provides for taking program outcomes assessments.

CINT 280 Co-op/Internship 1-6 Credits
Prerequisites: Program Advisor Approval. Provides students with the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit toward an associate degree. Fourth semester standing and a cumulative GPA of 2.0 or better is recommended for Internship students.

COMM 101 Fundamentals of Public Speaking 3 Credits
Transfer IN: COMM 101

COMM 102 Introduction to Interpersonal Communication 3 Credits
Transfer IN: COMM 102

COMM 201 Introduction to Mass Communication 3 Credits
Prerequisites: ENGL 111. A survey of the print and electronic media that compose the mass media industry. Included in the survey are the history, technology, utilization and influence of each of the mediums as well as their symbiotic relationship to each other.

COMM 202 Small Group Communication 3 Credits
Prerequisites: ENGL 111. An introduction to communication principles and practices that enable small groups, such as committees, conferences and public discussions, to function effectively as well as the practices which limit small group effectiveness. The course is pragmatic in approach, and the student will learn small group dynamics through participation.
COMM 203 Oral Interpretation of Literature 3 Credits
Prerequisites: ENGL 111. Designed to develop the student's ability to select, analyze, interpret and communicate literature to diverse audiences and to enhance the student's appreciation of literature.

COMM 204 Voice and Articulation 3 Credits
Prerequisites: COMM 101. Designed to improve the student's vocal abilities by providing a body of knowledge about voice production and diction and enabling the student to use this knowledge for his/her self-improvement.

COMM 211 Introduction to Public Relations 3 Credits
Prerequisites: ENGL 111. The course provides an introduction to the concepts, principles, and practices of public relations, from the historical to the contemporary, including public relations philosophy and theory. The course will focus on topics such as the origins of public relations, the functions and practices of public relations from past to present, ethics and law, message strategies, and research methods pertaining to public relations.

CONT 101 Introduction to Construction Technology 3 Credits
Prerequisites: None. Presents history of building construction to present-day applications emphasizing future trends and construction as a career. Provides practice in the operation, maintenance and safety of various tools including the builder's level and transit.

CONT 102 Construction Materials 3 Credits
Prerequisites: None. Develops skills in identifying building materials commonly used in modern building construction. Provides experience in the application of locally accessible materials.

CONT 106 Construction Blueprint Reading 3 Credits
Prerequisites: None. Provides instruction and practice in the use of working drawings and applications from the print to the work. Includes relationship of views and details, interpretation of dimension, transposing scale, tolerance, electrical symbols, sections, materials list, architectural plans, room schedules and plot plans.

CONT 127 Electrical Basics 3 Credits
Prerequisites: None. An introductory course covering both AC and DC circuits. Studies include electron theory, Ohm's Law, Watt's Law, Kirchhoff's Law, series circuits, series-parallel circuits, electromagnetic induction, current, voltage, resistance, power, inductance, capacitance, and transformers. Demonstrates the use of electrical equipment, troubleshooting, installation of hardware, metering equipment, lights, switches, and safety procedures and practices.

CONT 204 Estimating and Specifications 3 Credits
Prerequisites: CONT 106. Involves students with estimating process for residential construction. Emphasizes reading blueprints and specifications, estimating labor costs, materials take-off and pricing.

CONT 279 Construction Technology Capstone Course 1 Credit
Prerequisites: Program Advisor Approval. Prepares the student for entry into construction. The course reviews the construction technology core courses. It provides a comprehensive evaluation of the level of proficiency of these courses. It also requires taking the outcomes assessment (CAAP) test.

CONT 280 Co-op/Internship 1-6 Credits
Prerequisites: Program Advisor Approval. Gives students the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit toward an associate degree.

CRIM 101 Introduction to Criminal TransferIN 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An introductory and fundamental course that covers the purposes, functions, and history of the three primary parts of the criminal justice system: law enforcement, courts, and corrections. This course further explores the interrelationships and responsibilities of these three primary elements of the criminal justice system.

CRIM 103 Cultural Awareness 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Emphasizes the study of American criminal justice problems and systems in historical and cultural perspectives, as well as discussing social and public policy factors affecting crime. Multidisciplinary and multicultural perspectives are emphasized.

CRIM 105 Introduction to Criminology 3 Credits
Prerequisites: None. Corequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Critically examines the history and nature of the major theoretical perspectives in criminology, and the theories found within those perspectives. Analyzes the research support for such theories and perspectives, and the connections between theory and criminal justice practice within the major components of the criminal justice system. Demonstrates the application of specific theories to explain criminal and non-violent criminal behavior on both the micro and macro levels of analysis.

CRIM 110 Introduction to Law Enforcement 3 Credits
Prerequisites: CRIM 101. Introduces fundamental law enforcement operations and organization. Includes the evolution of law enforcement at federal, state, and local levels.

CRIM 111 Introduction to Traffic Enforcement and Investigation 3 Credits
Prerequisites: CRIM 101. Examines the role of law enforcement in traffic safety, traffic administration, traffic laws, accident investigation, police safety, and patrol practices.

CRIM 113 Criminal Investigation 3 Credits
Prerequisites: CRIM 101. A study of the elements and techniques of criminal investigations. Primary aspects include crime scene examination, collection of evidence and search for witnesses, developing and questioning suspects, and protecting the integrity of physical evidence found at the scene and while in transit to a forensic science laboratory. Procedures for the use and control of informants, inquiries keyed to basic leads, and other information-gathering activity and chain of custody procedures will also be reviewed.

CRIM 117 Introduction to Forensics 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Studies the organization and analysis of investigative evidence, basic considerations in preparing evidential documentation for presentation in court, collection and preservation of physical evidence, and elements of legal proof in submission of evidence.

CRIM 120 Introduction to Courts 3 Credits
Prerequisites: CRIM 101. Introduces topics related to the adjudication process in criminal cases, including arraignments and preliminary hearings, suppression hearings, trials, sentencing, juvenile court, and probation and parole. Reviews the role of criminal justice personnel in court processes.

CRIM 130 Introduction to Corrections 3 Credits
Prerequisites: CRIM 101. Examines the American correctional system; the study of administration of local, state, and federal correctional agencies. Includes the history and development of correctional policies and practices, criminal sentencing, jails, prisons, alternative sentencing, prisoner rights, rehabilitation, and community corrections including probation and parole. Current philosophies of corrections and the debates surrounding the roles and effectiveness of criminal sentences, institutional procedures, technological developments, and special populations are discussed.

CRIM 150 Juvenile Justice System 3 Credits
Prerequisites: CRIM 101. Examination of the philosophy and theory behind the juvenile justice system and its component parts or systems. Analysis of the police response to juvenile delinquency followed by the role of the prosecuting attorney, the juvenile court, juvenile correctional facilities, and community-based programs designed for juvenile offenders. The primary focus of attention will be on the level of integration of these systems into a coherent system of justice that effectively and equitably responds to juvenile crime. The level of cooperation and coordination existing between these various component parts of the juvenile justice system will be critiqued, and the effectiveness of the juvenile system as a whole will be evaluated. Special atten-
forms of force in the performance of police duties in the field. Students will receive instruction in the use of physical force, use of chemical agents, use of firearms, defensive tactics, and working with police dogs. Students will also receive live firearms operation instruction and live-fire qualification testing.

CRIM 213 Field Practice 3 Credits
Prerequisite: None. Provides hands on training in how to handle various situations encountered by law enforcement agents in the field. The student will study the considerations and intervention techniques used by police in dealing with various types of incidents: suicide management, conflict management, elderly abuse, domestic violence, critical incidents, dealing with street gangs, hate crimes, sexual assault, and criminal profiling, etc.

CRIM 215 Police Administration and Organization 3 Credits
Prerequisites: CRIM 101. Introduction to the basic principles of law enforcement administration and organizational structure, their function and activities, records, communication, public relations, personnel and training, policy formation, evaluation of personnel and complaint processing and planning. The student who successfully completes this course will have an understanding of traditional and contemporary management approaches and techniques.

CRIM 217 Advanced Forensics I 4 Credits
Prerequisites: BIOL 101 or CHEM 101. Advanced course addressing the biological aspects of forensic science with emphasis on laboratory techniques, laboratory reporting and identification of biological evidence in forensics.

CRIM 218 Advanced Forensics II 4 Credits
Prerequisites: CRIM 217. Advanced course addressing the anatomical aspects of forensic science with emphasis on identification of biological evidence in forensic pathology, including odontology, anthropometry, taphonomy, bacteria and viruses, protists, fungi, plants and invertebrates and vertebrates in forensics.

CRIM 220 Criminal Evidence 3 Credits
Prerequisites: CRIM 101. Examines the rules of evidence as applied in criminal investigation and criminal court with a discussion of relevant issues and legal standards.

CRIM 230 Community-Based Corrections 3 Credits
Prerequisites: CRIM 101. Reviews programs for convicted offenders that are alternatives to incarceration, including diversion, house arrest, restitution, community service, and other topics. Reviews post-incarceration situations, parole and probation.

CRIM 231 Special Issues in Corrections 3 Credits
Prerequisites: CRIM 101. Investigates topics of special interest related to corrections with an emphasis on the classification and treatment of inmates. Topics may vary to reflect contemporary corrections issues.

CRIM 240 Criminal Law and Procedure 3 Credits
Prerequisites: PARA 101 or CRIM 101. A theoretical and practical survey of the statutory law of crimes, evidence, and criminal procedure in Indiana, including an examination of sample pleadings and motions. Topics include the elements of specific crimes, formal procedures from pre-trial to post-trial, actual courtroom strategies, and the practical concerns involved in both the prosecution and defense of criminal cases.

CRIM 246 Legal Issues in Corrections 3 Credits
Prerequisites: HUMS 105 or CRIM 101. Examines the four historical stages of development of the American prison system, and the six major rationales for punishment associated with those stages. Identifies the criminological perspectives that inform the rationales for punishment, and the correctional policy implications relative to each rationale. Analyzes the research support for each of the six rationales for punishment, and the policy implications associated with them. Connects relevant legal issues to the correctional policy implications relative to each rationale for punishment. Locates appellate court decisions relative to correctional policy within the context of contemporary social, economic, and political conditions and controversies. Identifies the specific rights of prisoners and the responsibilities of the state with respect to the conditions of confinement.

CRIM 250 Juvenile Law and Procedures 3 Credits
Prerequisites: CRIM 123. Examination of the philosophy and theory behind the juvenile justice system and how juvenile law reflects that philosophy. Examination of the development of juvenile law and procedures, early juvenile law, landmark Supreme Court cases in juvenile justice, issues in juvenile law, and juvenile adjudicatory proceedings.

CRIM 251 Special Issues in Youth Services 3 Credits
Prerequisites: CRIM 150. Examines issues commonly experienced in the youth care field.

CRIM 252 Juvenile Delinquency 3 Credits
Prerequisites: CRIM 150. Provides an overview of the concepts, definitions, theories, and measurements of juvenile delinquency. Looks at the role of environmental influences (peers, gangs, school and drugs). Develops a working knowledge of the concepts of delinquency and the concern for children of our society. Discusses an overview of the history and philosophy of the juvenile justice systems as well as ways to control and treat juvenile offenders.

CRIM 260 Research Methods in Criminal Justice 3 Credits
Prerequisites: CRIM 101 and demonstrated competency through
appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Familiarizes students with the basic concepts, techniques, and problems associated with conducting research in criminal justice. Provides students with the analytical and critical thinking skills required to understand empirical research. Students will also acquire the necessary tools to conceptualize and conduct a research project. Students will examine the advantages and limitations of decisions that are made in the process of conducting research. Problems specific to research in criminal justice will be explored.

CRIM 271 Terrorism 3 Credits
Prerequisite: CRIM 101, ENGL 111. This course introduces students to an examination of terrorism and America's criminal justice system, with special emphasis on policing investigative response. The course surveys the meaning and historical overview of terrorism in the United States, a synopsis of global terrorism, and the functional and organizational preparedness and response to this global threat by America's criminal justice system.

CRIM 280 Internship 4 Credits
Prerequisites: Program Advisor Approval. Provides fieldwork experience in an approved social, educational, law enforcement, corrections or other criminal justice organization.

CSTC 101 Infection Control Procedures 4 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 050 or MATH 015 or MATH 023. Provides the fundamentals of central processing, supply and processing distribution. Designed to give instruction and practice in aseptic technique and infection control measures necessary for central service. This course includes an in-depth practice of numerous sterilization techniques. The student develops skills and becomes proficient in the functions of cleaning, decontaminating, processing, and sterilizing of reusable patient care supplies and equipment.

CSTC 102 Surgical Instrumentation 2 Credits
Prerequisites: CSTC 101. Prepares the student to identify surgical instruments by category, type and use. Emphasis on quality assurance enables the student to inspect, assemble and prepare instrumentation for packaging.

CSTC 103 Fundamentals of Health Careers 3 Credits
Prerequisites: CSTC 101. Emphasizes legal and ethical considerations of health care delivery. The student practices workplace safety measures including body mechanics, infection control and environmental safety. Employability skills to gain and keep employment are practiced.

CSTC 104 Clinical Applications I 3 Credits
Prerequisites: CSTC 102. Provides 100 of the 400 hours necessary for the student to take the IAHCSMM Technical Certification Exam.

Emphasis is placed on the basics of patient care equipment and general cleaning and wrapping of instruments.

CSTC 105 Fundamentals of Central Service 4 Credits
Technician Skills
Prerequisites: CSTC 104. Introduces the field of central service and the personnel within the department. The principles and importance of the flow of materials are determined. The student learns about environmental control factors affecting the central service department. The student will differentiate between equipment management systems and compare out-sourcing and insourcing. Various types of purchasing issues and inventory methods will be explored.

CSTC 106 Clinical Applications II 3 Credits
Technician Skills
Prerequisites: CSTC 104. Provides 160 of the 400 hours necessary for the student to take the IAHCSMM Technical Certification Exam. Emphasis will be placed on the basics of linen folding, assembling instrument and procedure trays, and sterilization.

CSTC 107 Application of Central Service 3 Credits
Technician Skills
Prerequisites: CSTC 104. Emphasizes the practice of high and low sterilization methods. Students differentiate among the various sterilization methods in theory and practice.

CSTC 108 Clinical Applications III 4 Credits
Prerequisites: CSTC 107. Provides 192 of the 400 hours necessary for the student to take the IAHCSMM Technical Certification Exam. Emphasis will be placed on clean and sterile storage, case carts, and distribution.

DENT 102 Dental Materials and Lab I 3 Credits
Prerequisites: Admission to the Dental Assistant program. The first in a series of two courses that reviews in-depth properties of dental materials; proper modes of manipulation, necessary armamentarium used, and technical duties dental assistants can perform. Stresses clinical behavior of materials and biological factors of importance to dental assistant.

DENT 115 Preclinical Practice I 4 Credits
Prerequisites: Admission to the Dental Assistant program. The first in a series of two courses that introduces in-depth qualification and legal/ethical requirements of the dental assistant. Surveys history and professional organizations. Emphasizes clinical environment and responsibilities, chairside assisting, equipment and instrument identification, tray setups, sterilization, characteristics of microorganisms, and disease control.

DENT 116 Dental Emergencies/Pharmacology 2 Credits
Prerequisites: Admission to the Dental Assistant program. An in-depth course that surveys the most commonly utilized and required first aid measures for emergencies. Examines proper techniques and procedures as well as equipment, medications and positioning for care of the patient. Reviews anatomy/physiology and cardiopulmonary rescue as provided by the American Heart Association.

DENT 117 Dental Office Management 2 Credits
Prerequisites: DENT 115. Focus on principles of administration, planning, bookkeeping, recall programs, banking, tax records, computer software, insurance, office practice and management as related to the dental office. Attention is given to techniques of appointment control, record keeping and credit and payment plans.

DENT 118 Dental Radiography 4 Credits
Prerequisites: DENT 115 and DENT 123. An in-depth course that focuses on the principles, benefits, effects, and control of X-rays production. Covers history, radiation sources, modern dental radiographic equipment and techniques, anatomical landmarks, dental films and processing. Emphasizes avoidance of errors while exposing and processing dental radiographs.

DENT 122 Clinical Practicum 1 Credit
Prerequisites: DENT 102, DENT 115 and DENT 123. An in-depth course that focuses on the performance of chairside skills that are applied in a clinical office situation on live patients.

DENT 123 Dental Anatomy 2 Credits
Prerequisites: Admission to the Dental Assistant program. An in-depth course that focuses on oral, head and neck anatomy, basic embryology, histology, tooth morphology and charting dental surfaces related to the dental field. Includes dental anomalies, pathological conditions and terminology relevant to effective communication.

DENT 124 Preventive Dentistry/Diet and Nutrition 2 Credits
Prerequisites: DENT 115 and DENT 123. An in-depth course that emphasizes the importance of preventive dentistry and the effects of diet and nutrition on dental health techniques of assisting patients in the maintenance of good oral hygiene.

DENT 125 Preclinical Practice II 3 Credits
Prerequisites: DENT 102, DENT 115, DENT 116 and DENT 123. The second in a series of two in-depth courses that continues Preclinical Practice I. Anesthesia is presented. The following dental specialties are presented: Oral and Maxillofacial Surgery, Periodontics, Endodontics, Pediatric Dentistry, Orthodontics, Prosthodontics, and Dental Public Health.

DENT 129 Dental Materials and Lab II 3 Credits
Prerequisites: DENT 102. The second in a series of two in-depth courses that reviews the properties of dental materials; proper modes of manipulation, necessary armamentarium used, and technical duties dental assistants can perform. Stresses clinical behavior of materials and biological factors of importance to dental assistant.
DENT 130 Clinical Externship
Prerequisites: DENT 122 and Program Advisor Approval. An in-depth clinical learning experience that provides increased practical chairside dental assisting experience to be gained from private dentistry practices in general and specialty areas of dentistry. Opportunity for increased skill development in clinical support and business office procedures also provided. Weekly seminars are included as an integral part of the learning experience. Simulated exams are administered to review for the national certification exam.

DENT 131 Basic Integrated Science
Prerequisites: Admission to the Dental Assistant program. An introductory course that examines human body as integrated unit; includes anatomy, physiology and medical terminology.

DENT 132 Expanded Functions for Dental Assistants
Prerequisite: DENT 129, DENT 125, DENT 122, DENT 123. Applies theory and techniques at the laboratory competency level of restorative dentistry to facilitate increased production potentials in the dental office. Students are instructed in the various extended functions as allowed by the Indiana Dental Law and the Board of Dental Examiners.

DENT 171 Introduction to Dental Terminology
Prerequisite: None. Addresses basic terminology required for allied health professionals, with a focus on dental assisting. Provides a review of terms associated with anatomy and physiology, pathology, special procedures, laboratory procedures, and pharmacology. Emphasis is on forming a foundation for a dental vocabulary including meaning, spelling, and pronunciation. Dental abbreviations, signs, and symbols are integrated.

DESN 100 Introduction to Design Technology
Prerequisites: None. Provides the beginning design technology student with the basic tools necessary for success in their chosen program.

DESN 102 Technical Graphics
Prerequisites: None. Provides students with a basic understanding of the detailing skills commonly used by a drafting technician. Areas of study include: lettering, sketching, proper use of equipment, geometric constructions with emphasis on orthographic (multi-view) drawings that are dimensioned and noted to ANSI standards.

DESN 103 CAD Fundamentals
Prerequisites: None. Provides students with a basic understanding of the features and considerations associated with the operation of a computer-aided design (CAD) system. Students will gain valuable hands-on experience using CAD software. They will be expected to complete several projects (increasing in difficulty) relating to command topics covered on a weekly basis.

DESN 104 Mechanical Graphics
Prerequisites: DESN 103. Covers working drawings both in detailing and assembly. Presents fastening devices, thread symbols and nomenclature, surface texture symbols, classes of fits, and the use of parts lists, title blocks and revision blocks.

DESN 105 Architectural Design I
Prerequisites: DESN 103 or PLTW IED AND PLTW PDC. Presents a history and survey of architecture and focuses on creative design of buildings in a studio environment. Covers problems of site analysis, facilities programming, space planning, conceptual design, proper use of materials, selection of structure and construction techniques. Develops presentation drawings, and requires oral presentations and critiques. Generation of form and space is addressed through basic architectural theory, related architectural styles, design strategies, and a visual representation of the student's design process.

DESN 106 Descriptive Geometry
Prerequisites: DESN 102. Introduces fundamental principles in developing graphical solutions to engineering problems. Topics covered in this course include true length, piercing points on a plane, line intersections, true shapes, revolutions, and developments using successive auxiliary views.

DESN 107 History of Architecture
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 205, ENGL 207, and MATH 104 or MATH 105. Studies the ingenuity and imagination of the human spirit in shaping the built environment related to cultural, political, social, and technological history. Presents a survey of architectural styles, architects, design philosophies, and building materials used by time, region, and city. Requires oral presentations, essays, term papers, research, and small projects. Field trips to historical architectural sites are a part of this course.

DESN 108 Residential Design
Prerequisites: DESN 103. Covers residential design and drafting. Includes interior space planning, structural design and development of working drawings. Provides opportunity for students to design a residence using accepted building standards.

DESN 109 Construction Materials and Specifications
Prerequisites: None. Introduces various construction materials, composition and application. Studies specifications of materials, construction contracts, and applications required in the building industry.

DESN 110 Architectural Rendering
Prerequisites: DESN 102. Presents a survey and history of pictorial drawings. Studies light and color, rendering media, and application of different architectural rendering techniques and media through a series of exercises.

DESN 113 Intermediate CAD
Prerequisites: DESN 103. Improves the student's CAD ability by presenting intermediate CAD commands, which will lead to the creation of advanced prototype drawings. Graphical manipulation of symbol libraries, the utilization of advanced dimensioning techniques, and application of data sharing techniques. Detailed plotting instruction will also be covered. Students will be expected to complete several projects relating to command topics covered on a weekly basis.

DESN 130 Fundamentals of Computer Graphics
Prerequisites: None. Introduces students to raster & vector-based applications as they relate to the CAD field. Demonstrates the knowledge of devices used in the creation and the output of drawings. Understand the importance of graphics in the design process and how it impacts the design field. These skills are developed by producing work from related applications.

DESN 131 Industrial Sketching
Prerequisites: None. Combines fundamental computer graphics concepts of design visualization, communication and display within an industrial sketching metaphor. Exercises and projects in graphic theory, problem solving and sketching skill development provide students with activities that focus on further development within CADD, vector imaging, raster imaging and other related formats. A variety of sketching techniques are used to gather critical information and transform graphical data into effective design communication instruments. Produces samples for student portfolios.

DESN 132 Raster Imaging Fundamentals
Prerequisites: None. Provides intermediate instruction in illustration techniques using computer software designed for creating illustrations, technical, drawing, logos, packaging, maps, charts, and graphs utilizing CADD data. Emphasis is on preparing effective, creative illustrations for various media applications in an efficient, productive manner. Produces samples for student portfolios.

DESN 133 Vector Imaging Fundamentals
Prerequisites: DESN 130. Provides fundamental instruction in working with vector images (CAD drawings) while applying elements and principles of design to illustrations for various output. Combines color theory, creativity, and layout design for renderings.

DESN 138 2D Animation
Prerequisites: DESN 130. Provides fundamental instruction in creating animation scripts are developed as well as how visual stories are told through technical elements such as composition, lighting, framing, and perspective. Exploring how to tap into creativity and create interesting original animations.

DESN 201 Schematics
Prerequisites: DESN 102 and DESN 103. Includes the layout of the various types of schematic drawings. Students will prepare finished
drawings for the manufacture or installation of plumbing, heating, electrical, electronic and fluid power drawings.

**DESN 202 CAD Customization and Programming**
Prerequisites: DESN 103. Covers customizing of a CAD system. Covers methods used to make CAD system more efficient for the individual user.

**DESN 204 Architectural Design II**
Prerequisites: DESN 105. Present advanced computer-aided design topics in architectural design. Utilizes current UBC information for project design. Includes all necessary drawings needed for the construction process.

**DESN 206 Mechanical and Electrical Equipment**
Prerequisites: DESN 103 and MATH 133 or MATH 136. Focuses on mechanical and electrical requirements for buildings. Studies electrical load calculations, wire sizing and circuits, plumbing requirements, fixture units and pipe sizing. Includes heating systems, duct layout and sizing.

**DESN 207 Die Design**
Prerequisites: DESN 104 and ADMF 115. Studies the detailing and design of blanking, piercing, and forming dies. Covers material reaction to shear, cutting clearances and net gauging.

**DESN 208 Structural Design and Detailing**
Prerequisites: DESN 109, DESN 103 and MATH 134 or MATH 137. Focuses on the design and detailing of commercial structural members, their connections, materials and methods of construction. Concentrates on traditional materials such as reinforced concrete, masonry, steel, and timber. Develops understanding of element behavior, its significance to detailing, and establishes the ability to prepare working drawings for structural projects.

**DESN 209 Estimating**
Prerequisites: DESN 109. This course provides students with an understanding of building an estimate of the probable construction costs for any given project. To prepare an estimate of quantities, the student estimator must become familiar with working drawings, specifications, and various bid documents. While computerized estimating software is commonplace in industry, it is also essential that the student is able to apply the math theory behind quantification.

**DESN 210 Surveying**
Prerequisites: MATH 121 or MATH 131 or MATH 134 or MATH 137. Provides students with a basic understanding of surveying equipment, procedures for performing measurements, turning angles, determining grades and other field applications. Surveying techniques and computations using the level, chain, and transit in calculating areas, lines, and grades will be covered in this course.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>DESN 211 Commercial Structures I</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 204 and MATH 134 or MATH 137. Presents the design and drawing of commercial structures utilizing the Uniform Building Code (UBC). Focus is directed to structural systems and details of commercial structures including wood, steel, and concrete. Provides architecture students with essential skills to perform structural analysis of buildings.</td>
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<tr>
<td>DESN 212 Commercial Structures II</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 211. Focuses on the planning and drawing of commercial structures. Uses working drawings for pre-engineered and concrete/steel structures. Applies lessons learned from DCT 211 to new structure(s).</td>
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<tr>
<td>DESN 213 CAD Mapping</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 103. Covers the concepts of map-making with CAD software and typical media found in the industry. Civil application of mapping procedures including profiles, topography, and site plans will also be discussed.</td>
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<tr>
<td>DESN 214 Kinematics of Machinery</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 104 and MATH 121 or MATH 131 or MATH 134 or MATH 137. This noncalculus based course studies the application of kinematics theories to real world machinery. Static and motion applications will be studied.</td>
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<tr>
<td>DESN 215 Electronic Schematics</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 102 and DESN 103. Introduces students to electronic schematics, standardized symbols, and acceptable practices in creating various electrical and electronic drawings. Emphasizes the creation and manipulation of basic symbols, connection diagrams, block and logic diagrams, including the use of figure parts and data extraction. Introduction to analog and digital multimeters and other electronic measuring instruments.</td>
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<tr>
<td>DESN 216 Jig and Fixture Design</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 104 and ADMF 115. The processes of drafting and design as applied to tooling. Emphasizes the development of jigs, fixtures, tooling, and associated support systems. Includes the use of computer-aided drafting and design (CAD) for the development of jigs and fixtures.</td>
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<tr>
<td>DESN 217 Design Process and Applications</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 104. Provides the student an opportunity to apply all previously acquired knowledge in the design of a new or existing consumer product. Students will study the design process with consideration given to the function, aesthetics, cost economics and marketability of the product. A research paper and product illustration is required in this course.</td>
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<tr>
<td>DESN 220 Advanced CAD</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 102 and DESN 103. Focuses on advanced CAD features, including fundamentals of three-dimensional modeling for design. Includes overview of modeling, graphical manipulation, part structuring, coordinate system, and developing strategy of modeling. Advanced CAD will enable the student to make the transition from 2D drafting to 3D modeling.</td>
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<tr>
<td>DESN 221 Statics</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: MATH 121 or MATH 131 or MATH 134 or MATH 137. Studies applied mechanics dealing with bodies at rest without the use of calculus. Covers units, vectors, equilibrium, moments and couples, planar force systems, distributed forces, analysis of structures, and friction.</td>
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<tr>
<td>DESN 222 Strength of Materials</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 221. Studies internal stresses and physical deformations caused by externally applied loads to structural members. Covers stress and strain, shear stress, properties of areas, shearing force and bending moment, deformation of beams, columns, and combined stresses. Studies various materials' physical and mechanical properties.</td>
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<tr>
<td>DESN 223 Parametric Solid Modeling</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 103. This course builds upon previous CAD experience and focuses on solid modeling techniques and design intent utilizing parametric solid modeling CAD software. Students will use CAD software to create solid geometry for individual parts, create assemblies from the individual parts and then produce engineering working drawings from the solids models. Topics include sketching, part modeling, and assemblies.</td>
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<tr>
<td>DESN 225 Portfolio Preparation</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 220 or Program Advisor Approval. Focuses on the student's final portfolio for graduation and preparation for the job interview. Finalizes design project work demonstrating the required knowledge and skills for degree achievements along with resume and cover letter preparation. A presentation for the portfolio is required in this class. Every student must submit a copy of the final portfolio for departmental archives upon graduation.</td>
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<tr>
<td>DESN 227 Geometric Dimensioning and Tolerancing</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 102 or IND T 102. Introduces the fundamental principles of geometric dimensioning and tolerancing according to the latest ANSI standards. Students will apply geometric dimensioning and tolerancing symbols along with tolerances of form, profile, orientation, run-out, and location to mechanical problems.</td>
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<tr>
<td>DESN 228 Civil I</td>
<td>3 Credits</td>
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<tr>
<td>Prerequisites: DESN 103 and MATH 134 or MATH 137. Presents an overview of the basics of infrastructure related design topics, including the study of roadway and drainage systems. Emphasizes the preparation of drawings pertaining to infrastructure design and site development. Numerical calculations related to the design topics will be discussed.</td>
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<td>Course Code</td>
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<tr>
<td>DESN 229 Civil II</td>
<td>3 Credits Prerequisites: DESN 228. Presents advanced infrastructure related design topics, including highway structures, pavement types and geotechnical considerations. Emphasizes the preparation of drawings pertaining to various types of bridges. Drawing presentation of geotechnical site studies and pavement designs is also reviewed. Numerical calculations related to the design topics will be explained.</td>
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<tr>
<td>DESN 230 Computer Modeling and Animation</td>
<td>3 Credits Prerequisites: DESN 103. Contains an historical overview of the development of computer-generated imagery, including CAD/CAM, computer animation, computer art, and visualization. This course will cover various aspects of 3-Dimensional modeling, lighting, and camera placement, as well as compositional and design aspects for presentation. Computer animation techniques such as keyframing, inverse kinematics, and simulation will be introduced. The course also includes an overview of storyboard, scene composition, and lighting.</td>
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<tr>
<td>DESN 250 Vector Mechanics-Statics</td>
<td>3 Credits Prerequisites: MATH 218. Includes resolution and composition of forces, moments, principles of equilibrium and application to trusses and jointed frames, friction, center of gravity and second moments of areas. Uses vector analysis throughout.</td>
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<tr>
<td>DESN 251 Dynamics</td>
<td>3 Credits Prerequisites: DESN 250. Covers rectilinear and curvilinear motions, force, mass and acceleration, projectiles, pendulums, inertia forces in machines, work and energy, impulse and momentum and impact.</td>
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<tr>
<td>DESN 252 Mechanics of Solids</td>
<td>4 Credits Prerequisites: DESN 250. Covers general principles of stress and strain, including elastic and inelastic behavior, shear, torsion, stresses in beams and deflection of beams and columns. Lab portion will be used to determine various materials' physical and mechanical properties.</td>
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<tr>
<td>DESN 271 Introduction to Solidworks</td>
<td>3 Credits Prerequisites: DESN 103. Introduction of the fundamental features of Solidworks design software and its major applications in industries. Students will get knowledge and skill on technical drawing making, communication and drawing management utilizing Solidworks.</td>
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<tr>
<td>DESN 272 Advanced Solid Modeling</td>
<td>3 Credits Prerequisites: DESN 220. This course covers the modeling of complex parts, complex surfaces, rapid prototyping, sheet metal parts, stress analysis, automatic bill of materials generation, and other advanced modeling techniques as time permits.</td>
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<tr>
<td>DESN 280 Co-op/Internship</td>
<td>3 Credits Prerequisites: Program Advisor Approval. Gives students the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credits towards an associate degree.</td>
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<tr>
<td>DHYG 101 Fundamentals of Dental Hygiene</td>
<td>2 Credits Prerequisites: Admission into the Dental Hygiene Program. Corequisites: DHYG 102, DHYG 103, DHYG 104, DHYG 105, and DHYG 106. Introduction to the dental and hygiene profession, including principles of infection control, instrumentation, instrument design and fundamental dental hygiene skills necessary to perform in subsequent courses. This course will have a corresponding lab to allow for application of principles learned in this course.</td>
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<tr>
<td>DHYG 102 Fundamentals of Dental Hygiene Clinic</td>
<td>2 Credits Prerequisites: Admission into the Dental Hygiene Program. Corequisites: DHYG 101, DHYG 103, DHYG 104, DHYG 105, and DHYG 106. Introduction to basic procedures used in dental hygiene practice, with primary emphasis on the techniques of instrumentation used in performing diagnostic, preventive, and therapeutic services.</td>
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<tr>
<td>DHYG 104 Dental Anatomy</td>
<td>2 Credits Prerequisites: Admission into the Dental Hygiene Program. Corequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 105, DHYG 106, and DHYG 107. An in-depth course that focuses on the morphology, structure, and function of deciduous and permanent teeth and surrounding tissues.</td>
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<tr>
<td>DHYG 106 Oral Histology and Embryology</td>
<td>1 Credit Prerequisites: Admission into the Dental Hygiene Program. Corequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, and DHYG 107. The study of histological and embryonic development of the head, face, and hard and soft tissues of the oral cavity to include developmental abnormalities.</td>
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<tr>
<td>DHYG 107 Head and Neck Anatomy</td>
<td>1 Credit Prerequisites: Admission into the Dental Hygiene Program. Corequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, and DHYG 106. Anatomy and Physiology of the head and neck are studied with special emphasis on nerves, muscles and their attachments, bone structures, and functions of the oral cavity.</td>
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<tr>
<td>DHYG 109 Preventive Dentistry</td>
<td>1 Credit Prerequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, DHYG 106, and DHYG 107. Oral diseases and preventable conditions will be reviewed and evaluated in terms of their causes, assessment of individual risk factors, epidemiological distributions in populations, clinical detection, and evidence-based approaches to prevention. Preventive methods, including fluoride, sealants, mouth guards, and plaque control measures, will be discussed in terms of their utilization, effectiveness, method of delivery, and cost.</td>
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<tr>
<td>DHYG 113 Dental Radiography Clinic I</td>
<td>1 Credit Prerequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, and DHYG 106. Corequisites: DHYG 114, DHYG 120, DHYG 121 and DHYG 122. Clinical applications of principles and theories learned in DHYG 103, Dental Radiology. Exposure, processing and management of intra and extra-oral radiographs.</td>
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<tr>
<td>DHYG 114 Dental Radiography Clinic II</td>
<td>5 Credits Prerequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, DHYG 106, and DHYG 107. Corequisites: DHYG 113, DHYG 120, DHYG 121 and DHYG 122. Patient assessment, treatment planning, writing, and communicating of dental hygiene treatment modalities including information pertaining to patients with special needs.</td>
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<tr>
<td>DHYG 120 Pharmacology</td>
<td>2 Credits Prerequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, DHYG 106, and DHYG 107. Corequisites: DHYG 113, DHYG 114, DHYG 121, DHYG 122. A study of drugs with emphasis on the classification of drugs, their uses, actions, interactions, side effects, contraindications and oral manifestations with emphasis on dental applications. A study of dental anesthetics is included.</td>
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<tr>
<td>DHYG 121 Medical and Dental Emergencies</td>
<td>1 Credit Prerequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, DHYG 106, and DHYG 107. Corequisites: DHYG 113, DHYG 114, DHYG 120 and DHYG 122. The prevention, diagnosis and management of common medical emergencies in the dental setting.</td>
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<tr>
<td>DHYG 122 General Pathology</td>
<td>1 Credit Prerequisites: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, DHYG 106, and DHYG 107. Corequisites: DHYG 113, DHYG 114, DHYG 120 and DHYG 121. Principles of general pathology, oral pathology and oral medicine related to etiology, progression, recognition and treatment of pathological conditions. Course content focuses on oral manifestations of systemic diseases, and pathologic identification of infectious diseases. Emphasis is placed on the importance of early recognition by the dental hygienist of abnormal oral conditions.</td>
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<tr>
<td>DHYG 201 Community and Public Health Dentistry</td>
<td>2 Credits Prerequisites: DHYG 204 and DHYG 228. Corequisites: DHYG 222 and</td>
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</table>
DHYG 224. A study of the principles and methods used in assessing, planning, implementing and evaluating community dental health programs. Topics include epidemiology, research methodology, biostatistics, preventive dental care, dental health education, program planning, and financing and utilization of dental services. Upon completion, students should be able to assess, plan, implement and evaluate a community dental health program.

DHYG 203 Dental Materials 2 Credits
Prerequisites: DHYG 204 and DHYG 228. Study of physical and chemical properties, identification, characteristics and manipulation of dental materials.

DHYG 204 Pain Management 2 Credits
Prerequisites: DHYG 113, DHYG 114, DHYG 120, DHYG 121 and DHYG 122. Corequisites: DHYG 228. Provides the dental hygiene student with both the theoretical knowledge and the practical clinical skills to successfully perform the appropriate pain control measures to maintain patient safety and comfort. This includes the prevention and management of emergencies.

DHYG 208 Periodontology 2 Credits
Prerequisite: DHYG 101, DHYG 102, DHYG 103, DHYG 104, DHYG 105, DHYG 106, and DHYG 107. A study of the normal and diseased periodontium to include the structural, systemic, functional and environmental factors. Emphasis on therapeutic and preventive periodontics, etiology, pathology, and treatment modalities.

DHYG 222 Oral Pathology 2 Credits
Prerequisites: DHYG 204 and DHYG 228. Corequisites: DHYG 201, DHYG 224. The study of oral diseases, oral manifestations of systemic disease, and the processes of inflammation, wound healing, repair and immunological responses. Emphasis will be placed on the recognition of oral abnormalities and differential diagnosis of oral lesions.

DHYG 224 Dental Hygiene Clinic II 5 Credits
Prerequisites: DHYG 204 and DHYG 228. Corequisites: DHYG 201 and DHYG 222. Applies theory and techniques of oral hygiene therapy in a clinical environment. Advanced instrumentation skills will be introduced. Clinical application of principles and theories learned in previous Dental Radiography I. Emphasis will be placed on accuracy of placing radiographs to meet patients needs.

DHYG 228 Dental Hygiene Clinical Procedures 1 Credit
Prerequisites: DHYG 113, DHYG 114, DHYG 120, DHYG 121 and DHYG 122. Corequisite: DHYG 204. This clinical course will focus on the continued development and refinement of dental hygiene skills learned in DHYG 114. Incorporation of dental radiographs into the dental hygiene treatment plan will be included.

DHYG 230 Clinical Seminar 2 Credits
Prerequisites: DHYG 204 and DHYG 234. Corequisites: DHYG 201, DHYG 203, DHYG 222, and DHYG 224. Provides information related to ethics, jurisprudence including a study of the state practice act. Practice management principles and employment opportunities for the dental hygienist, resume writing and interviewing covered.

DHYG 234 Dental Hygiene Clinic III 6 Credits
Prerequisites: DHYG 201, DHYG 208, DHYG 222, and DHYG 224. Corequisites: DHYG 230. Allows for the refinement of clinical skills and application of technology and current procedural practices of the dental hygienist with emphasis on self-evaluation and quality assurance.

DHYG 235 Community Oral Health Practicum 1 Credit
Prerequisites: DHYG 204 and DHYG 228. This course provides an opportunity for the dental hygiene student to apply principles learned in DHYG 201, and the present dental health information to various community groups and organizations. Project implementation and evaluation are included.

DMSI 100 Introduction to Sonography 1 Credit
Prerequisites: None. Students will learn the components of the ultrasound control panel, ergonomics, and proper scanning technique. They will also learn patient care considerations specific to sonography exams.

DMSI 101 Ultrasound Physics I 3 Credits
Prerequisites: None. This course will describe basic ultrasound physics to include the make-up and production of sound waves and their characteristics, as well as the interaction of the sound wave with different materials. The construction of the transducer how the sound beam is produced will be covered as well as the effects of the transducer on image resolution.

DMSI 102 Abdominal Sonography I 3 Credits
Prerequisites: None. Introduces and familiarizes the student with the basic anatomy and physiology related to abdominal sonography. The student will also learn to identify cross sectional and sonographic anatomy.

DMSI 103 OB/Gyn Sonography I 3 Credits
Prerequisites: None. This course will introduce and familiarize the student with the basic pelvic and first trimester obstetric anatomy, physiology, and sonographic imaging.

DMSI 104 Vascular Imaging I 3 Credits
Prerequisites: One year prior experience in the area of study. This course focuses on the performance and interpretation of noninvasive ultrasound vascular studies. Topics of study will include anatomy, physiology, hemodynamics of the vascular system, direct and indirect testing methods, B-Mode imaging, pulsed Doppler, spectral analysis, color flow Doppler, and preliminary interpretation. The anatomy, physiology, and pathology of the arterial and venous circulation systems and the imaging protocols and techniques for these systems will be covered in this course.

DMSI 105 General Sonography Clinical I 3 Credits
Prerequisites: Admission to the General Sonography Program. Content and clinical practice experience shall be assigned for sequential development, application, critical analysis, and evaluation of concepts and theories in the performance of general sonographic procedures. Through structured, sequential, competency based assignments in the clinical setting concepts of team work and patient care centered clinical practice and professional development will be examined and evaluated. Clinical practices are designed to provide the student with patient care and general sonographic exam experiences.

DMSI 110 Vascular Sonography I and Lab 4 Credits
Prerequisites: Admission to the Vascular Sonography Program. This course will focus on the principles of hemodynamics and how disease affects these principles. There will be a study of the cerebrovascular system to include anatomy, physiology, and pathology.

DMSI 113 General Sonography Clinical II 3 Credits
Prerequisites: DMSI 105. Content and clinical practice experience shall be assigned for sequential development, application, critical analysis, and evaluation of concepts and theories in the performance of general sonographic procedures. Through structured, sequential, competency based assignments in the clinical setting concepts of team work and patient care centered clinical practice and professional development will be examined and evaluated. Clinical practices are designed to provide the student with patient care and general sonographic exam experiences.

DMSI 114 Vascular Sonography Clinical I 3 Credits
Prerequisites: Admission into the Vascular Sonography Program. This is the first of four rotations through various clinical sites to allow the student to acquire competency in the field of vascular sonography. During the first clinical rotation the student is required to use the knowledge acquired in the cognitive domain to display appropriate behavior in the affective domain. Knowledge from the cognitive domain gained last semester is also used as a foundation on which to build skills in the psychomotor domain. This is accomplished by scanning actual patients under controlled conditions.

DMSI 116 Vascular Sonography Clinical II 3 Credits
Prerequisites: DMSI 114. This is the second of four rotations through various clinical sites to allow the student to acquire competency in the field of vascular sonography. The student is required to use the knowledge acquired in the cognitive domain to display appropriate
behavior in the affective domain. Knowledge from the cognitive domain gained last semester is also used as a foundation on which to build skills in the psychomotor domain. This is accomplished by scanning actual patients under controlled conditions.

**DMSI 150 Vascular Sonography II and Lab**
4 Credits  
Prerequisites: DMSI 110. This course will continue to build on the principles learned in Vascular Sonography I. There will be a study of the upper and lower peripheral arterial system to include the anatomy, physiology, and pathology.

**DMSI 201 Ultrasound Physics II**
3 Credits  
Prerequisite: DMSI 101. Designed to build on basic fundamentals of ultrasound physics. The principles of Doppler, Color flow, 3D, and 4D ultrasound are presented.

**DMSI 202 Abdominal Sonography II**
3 Credits  
Prerequisites: DMSI 102. This course is a continuation of abdominal organs covered in Abdominal Sonography I. The urinary system, splenic, major vascular systems as well as the small part systems such as thyroid, breast, scrotum and musculoskeletal systems will be covered in this course. Pathology and the effects of different types of pathology as well as the sonographic appearance of organs affected will be discussed.

**DMSI 203 OB/Gyn Sonography II**
3 Credits  
Prerequisite: DMSI 103. Course will continue to build on the knowledge acquired in OB/Gyn Sonography I along with learning pathologic indications. Covers 2nd and 3rd trimester obstetric scanning.

**DMSI 204 Vascular Imaging II**
3 Credits  
Prerequisite: One year prior experience in the area of study. This course will build upon concepts and studies of Vascular Imaging I and focus on the performance and interpretation of noninvasive vascular ultrasound studies. Topics of study will include anatomy, physiology, hemodynamics of the vascular system, direct and indirect testing methods, B-Mode imaging, pulsed Doppler, spectral analysis, color flow Doppler, and preliminary interpretation. The anatomy, physiology, and pathology of the arterial and venous systems, concentrating on upper and lower extremity venous studies, and abdominal vascular studies and the imaging protocols and techniques for these systems will be covered.

**DMSI 205 General Sonography Clinical III**
3 Credits  
Prerequisites: DMSI 113. Content and clinical practice experience shall be assigned for sequential development, application, critical analysis, and evaluation of concepts and theories in the performance of general sonographic procedures. Through structured, sequential, competency-based assignments in the clinical setting concepts of team work and patient care centered clinical practice and professional development will be examined and evaluated. Clinical practices are designed to provide the student with patient care and general sonographic exam experiences.

**DMSI 206 General Sonography Clinical IV**
3 Credits  
Prerequisites: DMSI 205. Content and clinical practice experience shall be assigned for sequential development, application, critical analysis, and evaluation of concepts and theories in the performance of general sonographic procedures. Through structured, sequential, competency-based assignments in the clinical setting concepts of team work and patient care centered clinical practice and professional development will be examined and evaluated. Clinical practices are designed to provide the student with patient care and general sonographic exam experiences.

**DMSI 210 Vascular Sonography III and Lab**
4 Credits  
Prerequisites: DMSI 150. This course is a continuation of all the principles and applications learned in Vascular Sonography I and II. Studies will include the upper and lower peripheral venous systems and the abdominal vascular system. These studies will include anatomy, physiology, and pathology of these systems.

**DMSI 214 Vascular Sonography Clinical III**
3 Credits  
Prerequisites: DMSI 116. This is the third of four rotations through various clinical sites to allow the student to acquire competency in the field of vascular sonography. The student is required to use the knowledge acquired in the cognitive domain to display appropriate behavior in the affective domain. Knowledge from the cognitive domain gained last semester is also used as a foundation on which to build skills in the psychomotor domain. This is accomplished by scanning actual patients under controlled conditions.

**DMSI 216 Vascular Sonography Clinical IV**
3 Credits  
Prerequisites: DMSI 214. This is the last of four rotations through various clinical sites to allow the student to acquire competency in the field of vascular sonography. The student is required to use the knowledge acquired in the cognitive domain to display appropriate behavior in the affective domain. Knowledge from the cognitive domain gained last semester is also used as a foundation on which to build skills in the psychomotor domain. This is accomplished by scanning actual patients under controlled conditions.

**DMSI 295 Sonography Exam Review**
3 Credits  
Prerequisites: All previous General Sonography courses. Review of concepts and principles taught throughout the general sonography program to include emphasis on physics and anatomy and pathology. Mock examinations given in preparation for registry examinations through the American Registry for Diagnostic Medical Sonography and/or the American Registry of Radiologic Technologists.

**ECED 101 Health, Safety, and Nutrition**
3 Credits  
Prerequisites: None. Examines basic principles of child development, Developmental Appropriate Practices (DAP), importance of family, licensing, and elements of quality care of young children with an emphasis on the learning environment related to health, safety, and nutrition. Entry-level course for early care and education teachers.

**ECED 103 Curriculum in Early Childhood**
3 Credits  
Classroom  
Prerequisites: None. Entry level course for Early Care and Education teachers. Examines developmentally appropriate environments and activities in various childcare settings. Explores the varying developmental levels and cultural backgrounds of children.

**ECED 105 CDA Process**
3 Credits  
Prerequisites: Program Chair Approval. Prepares the student for the verification process for the Child Development Associate (CDA) credential. Students are provided opportunities for practical experience through supervised participation in early care and education settings.

**ECED 107 Introduction to Teaching**
3 Credits  
Prerequisites: None. An introductory course which explores philosophical and historical foundations of the American educational system. Examines the ecological factors that impact the classroom. Defines the characteristics of the competent teacher. Provides opportunities for observations, hands on learning experiences and volunteer service.

**ECED 110 Infant/Toddler Growth and Development**
3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Studies the physical, social, emotional, cognitive, and language development of infants and toddlers from conception through age three. Examines the crucial role of brain development and ecological systems during the first three years. Responsive care by adults is recognized as crucial to the development of the infants and toddlers. Quality child care is defined.

**ECED 111 Environments for Infants and Toddlers**
3 Credits  
Prerequisites: None. Examines physical, human and time environmental factors essential for providing quality early care and education. Discovers and assesses the various settings for infants and toddlers from the perspectives of quality and family issues. Adult-child relationships and adult-adult relationships within the environments are explored. Community resources and child advocacy efforts are examined.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECED 115</td>
<td>Indiana Youth Development (IYD)</td>
<td>3</td>
<td>Prerequisites: Program Chair Approval. Prepares the student for the verification process for the Indiana Youth Development Credential (IYD). Students are provided opportunities for practical experience through supervised participation in programs for school age and youth educational settings.</td>
</tr>
<tr>
<td>ECED 120</td>
<td>Child Growth and Development</td>
<td>3</td>
<td>Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Studies the physical, social, emotional, cognitive, and moral development of children from conception to age twelve. Theories of child development, biological and environmental foundations, prenatal development, the birth process, and the newborn baby are discussed. Influences of family, community, media, and culture are considered.</td>
</tr>
<tr>
<td>ECED 130</td>
<td>Developmentally Appropriate Guidance in a Cultural Context</td>
<td>3</td>
<td>Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Analyzes developmentally appropriate guidance, theory, and implementation for various early care and education settings. Provides a basic understanding of the anti-bias/multicultural emphasis in the field of early childhood.</td>
</tr>
<tr>
<td>ECED 200</td>
<td>Family-Teacher Partnerships</td>
<td>3</td>
<td>Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Examines the family-teacher partnership, recognizing the need to work as a team to enhance the child's development. Promotes awareness of the family as the child's first teacher, foundation, and framework for culture, language, attitudes, and values. Provides the structure for creating practices that establish active family participation. Explores issues and resources for families.</td>
</tr>
<tr>
<td>ECED 201</td>
<td>Skills for Parenting</td>
<td>3</td>
<td>Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Focuses on skill development in parents that provides knowledge regarding healthy development in young children, building self-esteem, communicating with young children, setting appropriate boundaries and nurturing emotional and social development in children. Examines models of parent education, parenting styles, and the need for parent empowerment. Analyzes the effects of parent involvement in children's educational experiences.</td>
</tr>
<tr>
<td>ECED 204</td>
<td>Families in Transition</td>
<td>3</td>
<td>Prerequisites: ENGL 111 and SOCI 111. Examines the stages of the family life cycle and interpersonal relationships among family members. Recognizes the impact of context and culture on the family's ability to function.</td>
</tr>
<tr>
<td>ECED 205</td>
<td>Early Care Practicum</td>
<td>3</td>
<td>Prerequisites: Program Chair Approval. Provides opportunity for practical experience through observation and supervised participation in childcare settings. This practicum offers experiences with age-infant through school age and requires 144 hours of field experience in an approved early care setting.</td>
</tr>
<tr>
<td>ECED 210</td>
<td>Early Childhood Administration</td>
<td>3</td>
<td>Prerequisites: ECED 100, ECED 120, ENGL 111 and demonstrated competency through appropriate assessment or earning a grade of “C” or better in MATH 050 or MATH 015 or MATH 023. Introduces principles of managing an early care and education program; emphasizes the role of the manager to include personnel and program administration and fiscal management. Explores client-community relations.</td>
</tr>
<tr>
<td>ECED 213</td>
<td>Infant and Toddler Programming</td>
<td>3</td>
<td>Prerequisites: ECED 110 or ECED 120. Studies the program planning and operation for quality infant and toddler care and education. The students examine the teacher's role in establishing positive and productive relationships with families. Exploration of essential skills and dispositions in managing an effective program are considered. The students will broaden their knowledge base of appropriate instructional strategies to enhance infant/toddler development. Students will develop activities to enhance the physical, social, emotional, and cognitive development of the child, 0-36 months. Students will complete observations and field experiences with children of this age.</td>
</tr>
<tr>
<td>ECED 215</td>
<td>The Business of Child Care</td>
<td>3</td>
<td>Prerequisites: ECED 100, ECED 101, ECED 103, ECED 105, demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 024 and ENGL 031. An introduction to the principles of child care management, emphasizing the role of the business manager including personnel and program administration and fiscal management. Explores the concept of starting your own child care business including determining the need, client-community relations and marketing strategies.</td>
</tr>
<tr>
<td>ECED 216</td>
<td>Curriculum Planning For Early Childhood Administrators</td>
<td>3</td>
<td>Prerequisites: ENGL 111 and demonstrated competency through appropriate assessment or earning a grade of “C” or better in MATH 050 or MATH 015 or MATH 023 and 18 credit hours of ECED coursework. Overview of cognitive and creative curriculum from a developmentally appropriate perspective. Examines early childhood curriculum models with an emphasis on planning and evaluating curriculum to meet the comprehensive needs of the young child. Course places emphasis on staff and family involvement in curriculum planning, implementation, and assessment.</td>
</tr>
<tr>
<td>ECED 218</td>
<td>Leadership and Mentoring in Early Childhood</td>
<td>3</td>
<td>Prerequisites: ENGL 111 and 9 credit hours of Early Childhood Education coursework and Program Chair Approval. A basic introduction to the concept of leadership. Includes theories of leadership and teamwork and provides an opportunity for students to present a workshop to Early Childhood professional to establish a relationship with a protégé.</td>
</tr>
<tr>
<td>ECED 220</td>
<td>Adolescent Growth and Development</td>
<td>3</td>
<td>Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Examines the physical, social, emotional, cognitive, and moral development of the child age eight through adolescence. Influences of family, school, peers, community, media, and cultures are discussed. Issues such as health, puberty, school issues, peers and youth culture, and personal, including substance abuse, eating disorders, pregnancy, depression, and suicide are considered.</td>
</tr>
<tr>
<td>ECED 223</td>
<td>School Age Programming</td>
<td>3</td>
<td>Prerequisites: None. Examines environments, materials, methods and teaching styles for providing creative experiences for the school age child. Offers appropriate experiences in music, movement, art and drama as well as methods to assist students in identification and pursuit of specific personal interest areas in a school age child care setting. Reviews theories of adolescent growth and development, establishment of partnerships with families and positive guidance techniques for school age children.</td>
</tr>
<tr>
<td>ECED 225</td>
<td>Infant Toddler Practicum</td>
<td>3</td>
<td>Prerequisites: Program Chair Approval. Provides opportunity for practical experiences through observation, assessment and supervised participation in an infant/toddler setting. Students develop implement and assess appropriate environments and activities for children 6-36 weeks. Requires 144 hours of field experience.</td>
</tr>
<tr>
<td>ECED 230</td>
<td>The Exceptional Child</td>
<td>3</td>
<td>Prerequisites: ECED 120 and ENGL 111. Provides an introduction to caring for each exceptional child. Includes theories and practices for producing optimal developmental growth. Develops teaching techniques and explores public policy including legislative mandates. Explores the types of special needs and provides methods for assistance.</td>
</tr>
</tbody>
</table>
| ECED 233    | Emerging Literacy                                | 3       | Prerequisites: ECED 103 and ENGL 111. Provides for understanding of the development of children's language arts behaviors, concepts, and skills that precede and can develop into literacy, which includes reading and writing skills. Provides understanding and skills on how the acquisition of language for young children develops into optimum literacy growth through the materials and the environments that are provided for the young children. Students will explore and
evaluate literature for young children. The course introduces technology materials and techniques, which are utilized in early childhood programs. In the course the students will research, examine and evaluate various screening and assessment tools related to literacy in the early childhood.

**EDCD 235 Preschool Practicum 3 Credits**
Prerequisites: Program Chair Approval. Provides opportunity for practical experience through observation and supervised participation in early care and education setting with children ages 3-5. Students will develop and implement developmentally appropriate environments and activities.

**EDCD 240 Introduction to Care in the Home 3 Credits**
Prerequisites: None. Examines environments, materials, methods and teaching styles appropriate to child care in the home. Offers appropriate experiences in all curricular areas as well as suggestions for designing and operating a program that serves all ages. Reviews theories of growth and development, establishment of partnerships with families and positive guidance techniques for infants and children from birth through age twelve. Reviews Indiana family child care licensing regulations.

**EDCD 243 Cognitive Curriculum 3 Credits**
Prerequisites: EEDC 103 or EEDC 107 and EEDC 110 or EEDC 120 or EEDC 121 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 015 or MATH 023 or MATH 050. Review cognitive theories of development in relation to the domains of early learning. Analyze appropriate problem solving, math, science, and social studies curriculum in early childhood settings. Create and implement curriculum in the domains of early learning with appropriate child outcomes assessment. Reflect upon implementation of activities and assessment with children.

**EDCD 245 School Age Practicum 3 Credits**
Prerequisites: Program Chair Approval. Provides opportunities for practical experience through observation and supervised participation and assessment in a school-age setting. Students will develop and implement appropriate environments and activities. Requires 144 hours of field experience.

**EDCD 255 Generalist Practicum 3 Credits**
Prerequisites: Program Chair Approval. Provides opportunity for practical experience through observation and supervised participation and assessments in an early childhood setting. Students will develop and implement appropriate program plans and activities. Requires 144 hours of field experience.

**EDCD 260 Early Childhood Professional 3 Credits**
Prerequisites: Program Chair Approval. Surveys and further examines early childhood philosophies, theories and theorists. Encourages students to form their own theories for learning, discipline, family involvement, and self-concept development. Guides students in the development of a professional graduation portfolio. This is a capstone course and requires program chair approval.

**EDCD 253 Transfer IN**

**ECHO 101 Introduction to Echocardiography 3 Credits**
Prerequisites: APHY 102, ENGL 111 and Advisor Approval and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050, MATH 070, MATH 080, MATH 015 or MATH 023. This course focuses on cardiac anatomy, cardiovascular pathway, blood flow diagrams, cardiac pressures, cardiac murmurs, basic ECG concepts and chest roentgenography. Includes discussion of essential modes of echocardiography such as 2D, M-mode, Doppler, color flow Doppler and related hemodynamic calculations. Course emphasizes identification and description of normal cardiac structures in selected media including graphic illustrations, anatomic models, and ultrasound images.

**ECHO 102 Adult Echocardiography I 3 Credits**
Prerequisites: APHY 102, ENGL 111 and Advisor Approval and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050, MATH 070, MATH 080, MATH 015 or MATH 023. Course emphasis on techniques utilized to perform a segmental adult echocardiogram, including explanation and practice in standard imaging planes and positions. Reviews normal cardiac anatomy for application in interpretation and categorizing basic cardiac pathophysiology.

**ECHO 104 Echocardiography Clinical I 5 Credits**
Prerequisites: APHY 102, ENGL 111 and Advisor Approval and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050, MATH 070, MATH 080, MATH 015 or MATH 023. Current CPR AHA Health Care Provider or equivalent; additional documentation for clinical affiliates as required. Provides practice in a clinical echocardiography laboratory setting. Learning environments will include critical care, emergency room, surgery, and cardiac telemetry units. Emphasis will be performance of adult echocardiograms with a trained cardiac sonographer, including essential patient care functions. Students will observe transesophageal, stress and contrast echocardiograms. Course includes required hospital orientation and 2 day electrocardiography course. Additional class fee for ECG course will apply.

**ECHO 201 Advanced Professional Growth 3 Credits and Development**
Prerequisites: ECHO 101, ECHO 102, ECHO 103, and ECHO 104. This course presents the role of the professional sonographer, including typical day-to-day responsibilities. Topics include maintaining proper scanning positions, lab setup, quality assurance, charging, ethics, patient confidentiality, safety and the significance of the team concept in contemporary healthcare settings. Capstone project emphasizes the essential role of life-long learning.

**ECHO 202 Adult Echocardiography II**
Prerequisites: ECHO 102. This course is a continuation of Adult Echocardiography I discussing pathophysiologic commonly seen in the adult heart, including post-operative findings such as prosthetic valves and heart transplantations, pacemaker wires, internal defibrillator wires, and central lines. Selected topics include identification and significance of tumors, masses, myxomas, contrast agents, and adult congenital heart diseases. Advanced ultrasound modalities such as 3D echocardiography, cardiac resynchronization therapy, and atrial septal defect closure devices will be discussed.

**ECHO 203 Cardiac Physics and Instrumentation II**
Prerequisites: ECHO 103. This course is a continuation of Cardiac Physics and Instrumentation I, emphasizing instrumentation variables, artifacts, and bioeffects.

**ECHO 204 Echocardiography Clinical II 5 Credits**
Prerequisites: ECHO 104. Provides additional supervised experience focused on development of skills to competently perform echocardiography procedures in adult patients, and assist cardiologists in various clinical environments. Rotations through other departments will include ECG, Cardiopulmonary Rehabilitation, Cath Lab, and the Operating Room for observation of selected cardiac surgical procedures. Observation and interaction with cardiologists during interpretation and dictation of echocardiograms is included. Continuing certification in CPR is required.

**ECON 101 Economics Fundamentals**
Transfer IN 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032 and MATH 050 or MATH 080 or MATH 023. Provides a survey of microeconomics, macroeconomics, international economics, comparative economic systems, historical development of economic thought, and their application to current economic problems. Introductory course intended for students who need only one semester of economics.

**ECON 201 Principles of Macroeconomics**
Transfer IN 3 Credits
Prerequisites: ENGL 111 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 080 or MATH 023. A descriptive and analytical study of fundamental concepts of national economics. It includes an analysis of the determination and fluctuations in national income and employment, monetary and fiscal policy, and international trade and finance. Economic analysis of monetary and fiscal policies is stressed.

**ECON 202 Principles of Microeconomics**
Transfer IN 3 Credits
Prerequisites: ENGL 111 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH
EDUC 101 Introduction to Teaching 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. An introductory course which provides a general introduction to the field of teaching. Students will explore educational careers, teaching preparation and professional expectations as well as requirements for teacher certification. Current trends and issues in education will be examined. A 20 hour supervised observational experience component is required for successful completion of this course.

EDUC 103 Personal Health 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces prospective teachers to the health issues children face. This course includes approaches to health appraisal, intervention strategies, and follow-up to health care issues for children. Special emphasis is placed on the physiological and psychological issues for children's health presented by AIDS, substance abuse, child abuse, eating disorders, suicide, and violence in the schools.

EDUC 104 Movement for Children 2 Credits
Prerequisites: None. Introduces principles of developmentally appropriate movement programs for elementary students.

EDUC 111 Spanish for Classroom Teachers I 4 Credits
Prerequisite: None. Develops communication skills in the Spanish language and prepares future teachers for Spanish-only interactions with Spanish-speaking ESL students and their families. Knowledge of the language is gained through vocabulary and grammar instruction. Acquisition of the language takes place in meaningful contextualized classroom-oriented activities. Class time is divided between these two major components.

EDUC 112 Spanish for Classroom Teachers II 4 Credits
Prerequisite: EDUC 111. Develops intermediate communication skills in the Spanish language and prepares future teachers for Spanish-only interactions with Spanish-speaking ESL students and their families. Knowledge of the language is gained through continued vocabulary and grammar instruction. Acquisition of the language takes place in meaningful contextualized classroom-oriented activities. Class time is divided equally between these two components.

EDUC 121 Child and Adolescent Development 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Examines the physical, social, emotional, cognitive, and moral development of the child/adolescent with a focus on the middle years through adolescence. Basic theories of child development, biological and environmental foundations of development, and the study of children through observation and interviewing techniques are explored. The influence of parents, peers, the school environment, culture, and the media are discussed. Up to 10 hours of observation/service learning may be required.

EDUC 130 Introduction to Multicultural Teaching 3 Credits
Prerequisites: EDUC 101, ENGL 111 and demonstrated competency through appropriate assessment or earning a grade of "C" or higher in MATH 050 or MATH 015 or MATH 023. This course examines social and cultural conditions that influence education. The purpose is to assist students in understanding diversity and how to use this knowledge effectively within the schools and community. The course pursues an in-depth study of self, familial, cultural heritage, and awareness of cultural differences. The course examines inclusive methods of teaching.

EDUC 160 The Education Professional I 1 Credit
Prerequisites: None. This course is designed to prepare the student to successfully pass the three PRAXIS / Pre-Professional Skills Test (PPST) exams of reading, writing, and math. The requirements of the teaching profession and successful transfer to a four-year institution teacher education program will be addressed.

EDUC 200 Education and the Community 3 Credits
Prerequisites: EDUC 101 and SOC 111. Focuses on the community, school, and family partnerships, including curriculum, philosophies, and partners' role in these areas. The course promotes awareness of families as the children's first teacher, as well as culture, values, language, and attitudes. Addresses ways to design and deliver parent teacher conferences, parent education, and parent involvement in schools and community.

EDUC 201 Using Computers in Education 3 Credits
Prerequisites: EDUC 101, ENGL 111 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Introduction to instructional computing and educational computing literature. Provides hands-on experience with educational software, utility packages, and commonly used microcomputer hardware.

EDUC 210 Planning for the Elementary Education Classroom
Prerequisites: Program Chair Approval. Provides opportunities for lecture and practical experience through observation and supervised participation and assessment in a school-age setting. Students will observe, develop, and implement direct teaching strategies as they relate to the organization of classroom instruction. Students will continue development of their digital portfolios.

EDUC 224 Introduction to Scientific Inquiry 3 Credits
Prerequisites: EDUC 101 and ENGL 111. Provides the education major with background in the science process skills. Students will explore science through active participation and reflect on content, skills, and dispositions as a member of a learning community.

EDUC 230 The Exceptional Child 3 Credits
Prerequisite: EDUC 101 or Program Chair Approval. Provides an introduction to caring for the exceptional child. Includes theories and practices for producing optimal developmental growth. Develops teaching techniques. Explores public policy, inclusion, early intervention, and IEP's (laws). Explores the types of special needs and provides opportunities through field experience to practice methods for helping children within special education and gifted/talented programs. Up to 20 hours of observation/service learning may be required.

EDUC 233 Literacy Development through Children's Literature
Prerequisite: EDUC 101. This course examines children's literature for the preschool child through adolescence. Students will also study the relationship to literacy development. This course not only focuses on the traditional aspects of literacy but also examines other genres of literature (i.e., picture books, folk tales, poetry, short stories, historical and contemporary fiction, fantasy, biographies, and novels). Also, the benefits and rewards to literature will be discussed - enjoyment, aesthetics, comprehension strategies, imagination, cognition, language, multicultural integration, as well as the development of the love of reading. Additionally, the role of art, illustrations, and media adaptations will be examined in conjunction with children's literature throughout the years. Students will also be introduced to literature awarded with the Newbery Award and Caldecott Medal distinctions.

EDUC 240 Introduction to Physical and Health Education for Elementary Teachers 3 Credits
Prerequisite: EDUC 101. This course provides the elementary education major with a foundation in physical and health education. Knowledge and skills for planning and implementing health and physical education curriculum to promote physical fitness and healthy living for children Pre-K through 6th grade will be covered in the course. An observational experience is required for successful completion of this course.

EDUC 241 Math Methods for Early/Middle Childhood Classrooms 3 Credits
Prerequisite: Math 111 or Math 035 or Math 043. This methods course for early childhood and elementary education teachers focuses on understanding and application of developmentally appropriate math environments and activities for children from early childhood through elementary school. An understanding of the developmental sequence of acquisition of math concepts and skills, as well as, application and assessment of the standards developed by both the NAEYC and NCTM is the foundation of this course.
EDUC 250 Educational Psychology 3 Credits
Prerequisites: EDUC 101 and PSYC 101. Focuses on the study and application of psychological concepts and principles as related to the teaching-learning process. Topics covered include educational research methods, cognitive and language development, personal, social, and moral development, behavioral learning, motivation, effective teaching, and measurement and evaluation. Up to 20 hours of observation/service learning may be required.

EDUC 260 The Education Professional II 1 Credit
Prerequisites: EDUC 101. Introduction to Teaching Development of a professional preservice teacher. Focus on analysis of the personal teaching philosophy and development of a portfolio. Students select artifacts that demonstrate competency of INTASC Standards. Description and rationale of each artifact are written and included in the portfolio. Post-graduation professional development plans are developed.

EDUC 261 Practicum 1-3 Credits
Prerequisites: Program Chair Approval. Provides opportunities for practical experience through observation and supervised participation and assessment in a school-age setting. Students will develop and implement appropriate environments and activities. Requires 144 hours of field experience.

EDUC 270 Contemporary Issues in Education 3 Credits
Prerequisites: Program Chair Approval. Surveys and further examines educational philosophies, theories, and theorists. Encourages students to form their own theories for learning, discipline, family involvement, and self-concept development. Guides students in the development of a professional portfolio.

EECT 101 Introduction to Electronics and Projects 3 Credits
Prerequisites: None. The material will concentrate on the physical world of electricity and electronics. Practical techniques for proper use of basic hand and machine tools are introduced. Topics include simple electronic circuits, soldering, desoldering, and troubleshooting. The process of fabricating printed circuit boards is presented. Communication skills are utilized to report project progress and results.

EECT 103 Soldering 1 Credit
Prerequisites: None. Students practice and develop skills soldering and desoldering through-hole and surface mount components. Students will use and maintain commercial grade solder/desolder stations. Students will be introduced to basic fabrication techniques.

EECT 105 Introduction to National Electrical Code 3 Credits
Prerequisites: None. Introduces the role and use of the National Electrical Code book. Provides an overview of interpretation, calculations, and revisions of the codebook.

EECT 107 - Introduction to Home Automation Technology 3 Credits
Prerequisites: None. An introduction to the installation and troubleshooting of home automated systems like home security, audio/video, computer networks, electrical wiring, cable and satellite systems.

EECT 111 Introduction to Circuits Analysis 4 Credits
Prerequisites: MATH 111 or MATH 035 or MATH 043. Voltage, current, resistance, Ohm's law, Kirchhoff's laws, resistance combinations, and Thevenin's, Norton's, and superposition theorems are studied. DC and AC circuits are studied and utilized with basic AC terminology described. The performance of ideal transformers, capacitors and inductors, and first order RLC circuits are investigated. Fundamental analog electronic circuits are utilized in the lecture and laboratory to enhance the understanding of basic laws and theorems.

EECT 112 Digital Fundamentals 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Introduces basic gate and flip-flop logic devices and their application in combinational and sequential digital circuits. Topics include memory, displays, encoders, multiplexers, demultiplexers, registers, and counters. Logic circuit analysis, implementation of circuits using standard IC chips or programmable logic devices, circuit testing and troubleshooting are emphasized.

EECT 115 Home Technology Integration 3 Credits
Prerequisites: EECT 107. Provides the student with an in-depth understanding and knowledge required for the installation and troubleshooting of home integration and security systems including HVAC systems, water systems, video/audio surveillance, and computer networks to prepare for the Home Technology Certification (HTC) exam.

EECT 119 Introduction to Lasers 3 Credits
Prerequisites: MATH 131 or MATH 134 or MATH 137. Introduces laser action, laser beam characteristics, types of lasers, safety considerations, general laser applications, laser and optical equipment. Teaches basics of laser systems and prepares beginning laser students for future courses. Includes an overview of lasers, physical basics, how lasers work, laser characteristics, laser accessories, gas lasers, solid-state lasers, semiconductor lasers, and other types of lasers. It also includes a brief overview of low-power laser and high-power applications.

EECT 121 Electronics Circuits Analysis 4 Credits
Prerequisites: EECT 111. Capacitors, inductors, switching circuits, transformers, rectifiers, linear regulators, dependent sources, operational amplifiers, BJT and MOSFET based small signal amplifiers, waveform generation, and programmable analog devices are studied. Circuit fundamentals such as Kirchhoff's laws are utilized in analysis and design circuits. Computer simulation is used.

EECT 122 Digital Applications 4 Credits
Prerequisites: EECT 112. This course continues the study of combinational and sequential digital applications. The input and output characteristics of the various common logic families and the appropriate signal conditioning techniques for on/off power interfacing are discussed. Also stressed are standard logic function blocks, digital and analog signal interfacing techniques, and memory devices.

EECT 127 Industrial Electronics 3 Credits
Prerequisites: EECT 126. Presents an overview of electronics in the industrial setting. Instructs students in how electronics are applied to industrial systems. Introduces power machines, polyphase systems, solid-state controls, transducers, and industrial computer systems.

EECT 128 Introduction to C Programming 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. An introduction to the "C" programming language. No programming experience is needed. After completing this course, the student will have a good understanding of programming concepts and terminology and should be able to pick up another programming language if interested. The course is designed to prepare students to use C to solve technical and engineering problems such as programming microprocessors.

EECT 130 Fiber Optics 3 Credits
Prerequisites: EECT 122. Presents an overview of fiber optics. Studies uses for fiber optics, advantages, cable details, connectors, splices, sources, detectors, and fiber optic systems.

EECT 140 Networking 3 Credits
Prerequisites: EECT 101. Study of types of protocols used in data communication systems. Includes an overview of networking, networking control, and interfacing. Areas of emphasis include protocols, packet switching systems, local area networks, and the OSI model.

EECT 209 Industrial Computer Control 3 Credits
Prerequisites: EECT 101 or equivalent. Corequisite: EECT 112 or equivalent. An introduction to the field of industrial controls as it relates to a computer control systems, process control and industrial networking. Covers the principles of control systems as applied to a production system to achieve automation. PLC's will be covered as the mainstay of industrial computer control. Troubleshooting of production control systems are covered.

EECT 211 AC Circuit Analysis 4 Credits
Prerequisites: EECT 121 and MATH 131 or MATH 134 or MATH 137. AC circuits, including the j operator, phasors, reactance, and impedance are studied. Circuit laws, network theorems, and the fundamental concepts of Fourier analysis are applied and used in the study of topics such as passive filters, IC filters, amplifiers, resonant circuits, single phase and three phase circuits. Computer aided
Introduces defibrillators, offers age analysis

EECT Prerequisites: EECT 126. Provides a system view of manufacturing and automated manufacturing emphasizing the devices used in control and measurements. Areas covered include pressure, strain, force, flow, and level considerations. Principles of process control are introduced, incorporating the usage of probes, sensors, transducers, and various control devices. Computer software, hardware, and interfacing are examined in regards to data acquisition, manufacturing control, and summarization of industrial data.

EECT 219 Biomedical Electronics I 3 Credits
Prerequisites: EECT 219. Offers study of medical electronics equipment including EEG, EKG, defibrillators, heart monitors, monitoring and respiratory equipment.

EECT 220 Biomedical Electronics II 3 Credits
Prerequisites: EECT 219. Studies medical support systems including X-ray equipment, respirators and analyzers, and their maintenance. Studies medical ultrasound, electro surgery units and mechanical recorders. Prepares students for licensing and certification.

EECT 221 Solid State 3 Credits
Prerequisites: EECT 121. Continues the study of bipolar transistors with additional circuit configurations including the emitter follower and the Darlington. Studies power amplifiers, amplifier classifications, unipolar transistors, and thyristors. Includes discrete FETs, SCRs, UPS, oscillators, linear regulated power supplies, and switching regulators. Discusses frequency effects and response of amplifiers.

EECT 222 Introduction to Microcontrollers 4 Credits
Prerequisites: EECT 222 and EECT 218. An introduction to microcontroller hardware and software, focusing on embedded control applications. Interconnections of components, peripheral devices, bus timing relationships, structured programming, debugging, input/output techniques, and use of PC-based software development tools are studied.

EECT 223 Electrical Machines 3 Credits
Prerequisites: EECT 111. Provides an overview of electrical machines and how they relate to Industrial electronics. Gives industrial electronics technicians insight into electrical power generation, polyphase system, transformers, all types of electrical motors, power factor and power factor correction, back-up power and electrical power monitoring.

EECT 224 Peripherals 3 Credits
Prerequisites: EECT 112. Studies peripherals commonly used with computers and microwaves and the interfacing with those peripherals. Includes printers, scanners, modems, NICs, video adapters and displays, keyboards and mouse, sound systems, and CD-ROM and DVDROM drives. Also includes a study of data communication hardware and techniques. Studies techniques for logical troubleshooting of microcomputer systems.

EECT 226 Computer Troubleshooting 3 Credits
Prerequisites: EECT 112. A study of techniques for logical troubleshooting of microcomputer systems. Emphasizes basic system components including hardware, software, motherboard, disk, floppy and hard disk drives, operation of video displays, and keyboard and mouse connections. Emphasizes system-oriented troubleshooting procedures.

EECT 228 Communications Electronics 3 Credits
Prerequisites: EECT 121. Analyzes communication circuits with emphasis on AM, FM, SSBN, transmitters and receivers, transmission lines, antennas, and wave propagation. Includes digital gain and attenuation, noise, modulation and demodulation principles, phase-locked loop, RF amplifiers, automatic gain control, detectors, limiters and discriminators. Offers hands-on lab exposure to analog circuits utilizing analysis and troubleshooting techniques.

EECT 229 Telecommunications 3 Credits
Prerequisites: EECT 112. Presents an in-depth view of the telecommunication industry from the very beginning to today's cellular, Internet, and broadband technologies. Examines various methods in transmitting digital data from one location to another. Covers transmission media, time and frequency multiplexing, modulation techniques, routing networks, communications hardware, protocols, telephone networks, and Internet systems. Cellular, cable broadband, and emerging technologies are also introduced.

EECT 230 Advanced Communications Electronics 3 Credits
Prerequisites: EECT 228. The basics of antenna principles and wave propagation together with an in-depth study of matching techniques for transmission lines. Includes the Smith Chart and a thorough study of television operation. Radiation patterns will be measured with different antenna arrays. Signal tracing troubleshooting techniques will be practiced on a color TV set.

EECT 233 Industrial Motors and Controls 3 Credits
Prerequisites: EECT 111. Provides a complete understanding of basic ladder and wiring diagrams used in the control of electric motors. Includes the various electrical components and their functions as applied to motor controls. Topics include the various types of motors used in applying electro-mechanical power, ranging from small AC shaded-pole fan motors through large three-phase motors. Motor starting components, protective devices, heat dissipation, motor slip

EECT 235 Process Control 3 Credits
Prerequisites: EECT 121. Presents an in-depth view of process control theory and applications. Topics covered are open and closed loop systems, feedback concepts, signal conditioning, standards and terminology, controller principles, and loop characteristics. Concepts of thermal, mechanical, optical sensor devices are emphasized as measurement control. Transducers and final control actuators are examined.

EECT 237 Calibration 3 Credits
Prerequisites: EECT 121. Provides an introductory overview of procedure calibration for instruments (electronic and pneumatic) found in today's controlling environments and industry. Instrument evaluation, installation, and calibration are the emphasis for this course. Dismantling and calibration of CP cells, gauges, valve positioners, thermocouple circuits, control elements, and other industrial instruments are incorporated throughout the course.

EECT 238 Process Instrumentation 3 Credits
Prerequisites: EECT 121. Presents the concepts and fundamentals of measurement instrumentation and its application to industrial process control. Introduces basic device symbols and instrumentation terminology. Includes measurement principles and techniques involving temperature, pressure, flow, level, displacement, strain, load, torque, vibration, humidity, density, specific gravity, gas analysis, and conductivity. Discusses open versus closed loop control and the application of combinations of proportional, integral, and derivative control methods. Includes lab.

EECT 279 Advanced Problem Solving 3 Credits
Prerequisites: EECT 121 and EECT 122. Introduces logical troubleshooting of electronic circuits and systems with emphasis on systematic diagnostic methods and reference techniques. Provides further experience in the use of test equipment and proper repair techniques. Includes job preparation and skills preparation for appropriate certification testing.

EECT 280 Co-op/Internship 3 Credits
Prerequisite: Program Advisor Approval. Gives students the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit towards an associate's degree.

EECT 221 Electrical Power and Controls 4 Credits
Prerequisites: EECT 121 and PHYS 101. The introduction of magnetic materials is followed by analysis of transformers and power conditioning equipment. Also covered are induction motors and single and three-phase systems. Motor control devices, programmable logic controllers, PLC input and output devices, and power systems communication and monitoring are introduced.
ENGL 222 Western Literature Through the Middle Ages
Prerequisites: ENGL 111. Introduces Western Classical literature from Antiquity to Chaucer. Presents representative texts and stresses reflective and intensive reading from the major historical periods. Emphasizes aesthetic appreciation of literature, cultural and philosophical issues of its emergence.

ENGL 223 American Literature After the Middle Ages
Prerequisites: ENGL 111. A survey of literature course designed to acquaint the student with influential works from the early Colonial period to the time of the Civil War. Included will be a discussion of the major historical, cultural, intellectual, and political events which influenced the authors.

ENGL 224 Introduction to Poetry
Prerequisites: ENGL 111. Provides an introduction to the art and history of poetry. Emphasizes a greater appreciation and understanding of the genre through critical analysis of poetic forms and literary devices.

ENGL 225 Introduction to World Literature Through the Renaissance
Prerequisites: ENGL 111. A survey of literature course designed to acquaint the student with influential works from Shakespeare to the Modern Era. Presents representative texts and stresses reflective and intensive reading from the major historical periods. Emphasizes aesthetic appreciation of literature, cultural and philosophical issues of its emergence.

ENGL 226 Introduction to Literature
Prerequisites: ENGL 111. Development of basic strategies for critically reading and interpreting poetry, fiction, and drama; introduction to the premises and motives of literary analysis and critical methods associated with various literary concerns through class discussion and focused writing assignments.

ENGL 227 American Literature to 1865
Prerequisites: ENGL 111. This course is designed to survey major American poets and prose writers from the early Colonial period to the time of the Civil War. Included will be a discussion of the major historical, cultural, intellectual, and political events which influenced the authors.

ENGL 228 American Literature After 1865
Prerequisites: ENGL 111. This course is designed to survey major American poets and prose writers from the Civil War to the present. Included will be a discussion of the major historical, cultural, intellectual, and political events which influenced the authors.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 224</td>
<td>British Literature to 1800</td>
<td>3</td>
<td>ENGL 111. Survey of English Literature I introduces the student to British literature from Beowulf to the eighteenth century. Included will be a discussion of the major historical, cultural, intellectual, and political events which influenced the development of British literature.</td>
</tr>
<tr>
<td>ENGL 225</td>
<td>British Literature After 1800</td>
<td>3</td>
<td>ENGL 111. Survey of English Literature II introduces the student to British literature from the Romantic, Victorian, and modern periods. Included will be a discussion of the major historical, cultural, intellectual, and political events which influenced the development of British literature.</td>
</tr>
<tr>
<td>ENGL 227</td>
<td>World Fiction</td>
<td>3</td>
<td>ENGL 111. This general survey course introduces the genre of fiction through a focus on world authors. It examines themes and literary devices present in novels and short stories.</td>
</tr>
<tr>
<td>ENGL 240</td>
<td>Children's Literature Transfer IN</td>
<td>3</td>
<td>ENGL 111. This course provides a survey and analysis of classic and modern children's literature for students interested in understanding literature read to/ by children preschool-middle school. The course focuses on different genres of literature and may include picture books, folk tales, poetry, short stories, and novels. In addition, the role of art, illustrations, and media adaptations will be examined in conjunction with children's literature throughout the years.</td>
</tr>
<tr>
<td>ENGL 245</td>
<td>Literature of the Old Testament</td>
<td>3</td>
<td>ENGL 111. Surveys the Old Testament/Hebrew Scripture as a literary work. Emphasizes history, composition, structure, cultural context, and recognizing the contribution it has made to human development.</td>
</tr>
<tr>
<td>ENGL 249</td>
<td>Linguistics</td>
<td>3</td>
<td>ENGL 111. Designed to introduce students to the various disciplines which comprise the scientific study of language. These include a survey of applied, comparative, descriptive, and historical linguistics. The course will primarily focus on the English language.</td>
</tr>
<tr>
<td>ENGL 250</td>
<td>English Grammar</td>
<td>3</td>
<td>ENGL 111. An in-depth study of the grammatical structures of American English. A course designed to acquaint students with descriptions of modern English syntax.</td>
</tr>
<tr>
<td>ENGR 140</td>
<td>Engineering Software Tools I</td>
<td>3</td>
<td>MATH 133 and MATH 134 or MATH 136 and MATH 137. This course introduces the students to the engineering profession and to computer programming. The programming techniques which will be introduced are applicable to all computer languages. The C programming language will also be introduced. Examples and engineering applications will be used to illustrate programming concepts.</td>
</tr>
<tr>
<td>ENGR 160</td>
<td>Engineering Software Tools II</td>
<td>3</td>
<td>MATH 133 and MATH 134 or MATH 136 and MATH 137. Introducing students to object-oriented programming and design. Emphasis on engineering application.</td>
</tr>
<tr>
<td>ENGR 190</td>
<td>Introduction to Engineering Design</td>
<td>2</td>
<td>MATH 133 and MATH 134 or MATH 136 and MATH 137. This introductory course provides the student an opportunity to be introduced with fundamentals of the design process from mechanical and electrical aspects.</td>
</tr>
<tr>
<td>ENGR 251</td>
<td>Electrical Circuits I</td>
<td>4</td>
<td>MATH 211. Provides an integrated lab/lecture sequence in which students are introduced to the fundamentals of circuit analysis. Topics include resistive, capacitive, and inductive circuit elements, nodal and mesh analysis, transient response of RLC circuits, steady state sinusoidal response, operational amplifiers, and an introduction to diodes and transistors.</td>
</tr>
<tr>
<td>ENGR 252</td>
<td>Electrical Circuits II</td>
<td>4</td>
<td>ENGR 251. An integrated lab/lecture course which continues ENGR 251. This course covers sinusoidal steady state analysis, Laplace and Fourier analysis, transistors, diodes, op-amps, and three-phase systems. An introduction to computer aided design and analysis is provided.</td>
</tr>
<tr>
<td>ENGR 260</td>
<td>Vector Mechanics-Statics</td>
<td>3</td>
<td>MATH 212. Includes resolution and composition of forces, moments, principles of equilibrium and application to trusses and jointed frames, friction, center of gravity and second moments of areas. Uses vector analysis throughout.</td>
</tr>
<tr>
<td>ENGR 261</td>
<td>Dynamics</td>
<td>3</td>
<td>ENGR 260. Covers rectilinear and curvilinear motions, force, mass and acceleration, projectiles, pendulums, inertia forces in machines, work and energy, impulse and momentum and impact.</td>
</tr>
<tr>
<td>ENGR 270</td>
<td>Engineering Project Management</td>
<td>3</td>
<td>After 45 credit hours in the program. An introduction to principles of engineering project management and techniques. Topics include technical feasibility studies, project specifications, scheduling, validation, life cycle costing, and economic analysis. The focus is on managing an engineering project through scheduling, budgeting, resource management, execution and control.</td>
</tr>
<tr>
<td>ENGR 101</td>
<td>Introduction to the Energy Industry</td>
<td>1</td>
<td>None. This course introduces the student to the energy industry. Students will visit various energy utilities, such as a power plant, a switching yard, a substation, a natural gas regulator station, welding facilities, ethanol plants, biodiesel plants, and other renewable energy sites.</td>
</tr>
<tr>
<td>ENGR 102</td>
<td>Climbing</td>
<td>3</td>
<td>None. The student will gain the knowledge of the proper care of climbing tools, and the mastering of climbing wood pole structures. The student must master climbing wood pole structures with and without the use of a pole safety strap. Upon completion of this course the student will also be able to determine the proper aspects of pole inspection, and be able to recognize the hazards of climbing. Upon successful completion of this course, the student will be qualified in two methods of pole top rescue. An introduction to aerial pole framing is included in this discipline.</td>
</tr>
<tr>
<td>ENGR 103</td>
<td>Electrical Essentials for Power Line Workers</td>
<td>3</td>
<td>ENDT 113. An introduction to the electrical principles required for installation, maintenance and troubleshooting of power line. Topics include electrical units, power systems overview, ac current and voltage, single and three phase circuits, conductors and cables, transformers, grounding, protective equipment.</td>
</tr>
<tr>
<td>ENGR 107</td>
<td>Transmission and Distribution of Electric Power</td>
<td>3</td>
<td>ENDT 113. A study of the principles and components required for the transmission and distribution of electric power. To provide the student with an understanding of both high voltage systems, single and three phase circuits, voltage regulation, power grids, overhead and underground distribution, safety, buying and selling of power.</td>
</tr>
<tr>
<td>ENGR 109</td>
<td>Rigging for Line Workers</td>
<td>3</td>
<td>ENGR 102. The student will gain the knowledge of rigging gear inspection, safe rigging procedures and load control, using almost any vertical or horizontal rigging system. Students will tie knots. Splice rope, install block and lines or power lines for hoisting purposes, as well as calculate hook strain and haul line tension for safe working loads. Wire and chains will also be covered.</td>
</tr>
<tr>
<td>ENGR 203</td>
<td>Electric Line Distribution and Construction Practices I</td>
<td>3</td>
<td>ENGR 102 and ENGR 103. This course offers an introduction to basic field practices for electric distribution employees, such as managing risk in power line work, working with conductors and cables, and operating switchgear. The various connections of transformers, troubleshooting transformers, and maintaining voltage levels to the customer will be covered.</td>
</tr>
</tbody>
</table>
ENRG 205 Electric Line Distribution and Construction Practices II  
Prerequisites: ENRG 203 Electric Line Distribution and Construction Practices I. This course covers rigging in power line work, working with aerial devices and derrick rigs, installing protective grounds, working with live electrical circuits, working with revenue meters, and maintaining streetlights.

ENRG 211 Underground Distribution  
Prerequisites: ENRG 103 and ENRG 107. Course introduces the student to underground systems including drawings, materials, and installation practices. Installing, splicing, and terminating cables. Fusing, system maintenance, troubleshooting, job site safety issues.

ENVM 101 Introduction to Environmental Technology  
Prerequisites: None. Designed to introduce the student to environmental technology, the EPA, toxics, hazardous materials, and other waste topics. The course will touch on the subjects of mass destruction, chemistry, and some other common pollutants. Biological warfare topics will be discussed, protection for the hazardous materials situations, and protection for the fire fighting personnel in the event of an emergency.

ENVM 102 Environmental Management  
Prerequisites: None. Designed to introduce the student to environmental management, how the environmental regulations evolved, the EPA, OSHA, NIOSH, and other Environmental crimes will be discussed, how the government is enforcing the rules, weapons of mass destruction, biological warfare, and treatment and disposal of the toxic wastes.

ENVM 104 Plant Operations – Sanitary  
Prerequisites: Program Advisor Approval. Provides the basic principles of aerobic and anaerobic biological treatment processes, including activated sludge, trickling filters, lagoons, sludge handling and disinfection. Reviews state and federal regulations related to wastewater plants.

ENVM 105 Air Quality Management  
Prerequisites: CHEM 101. This course is designed to introduce the student to environmental air quality problems experienced, laws enforced and enacted by the EPA as well as others, toxicity, noise pollution, global air pollution, and a brief history of the EPA, and some of their accomplishments.

ENVM 106 Water Quality Management  
Prerequisites: CHEM 101. This course is designed to introduce the student to water management, how the environmental regulations evolved, the EPA, OSHA, NIOSH, and other Environmental crimes will be discussed, how the government is enforcing the rules, weapons of mass destruction, biological warfare, and treatment and disposal of the toxic wastes. Water resources, contamination, and what is happening to clean the water we drink.

ENVM 110 Environmental Toxicology  
Prerequisites: None. This course is designed to introduce the student to environmental toxicology, how it affects our bodies, our breathing, our environment we live in, the places we work, eat, and live. This course also tries to explain some of the conditions in industries, various laws that have been enacted and passed to protect the general population.

ENVM 208 Plant Operations – Industrial  
Prerequisites: Program Advisor Approval. Covers wastewater treatment processes including coagulation, sedimentation, activated sludge, neutralization, equalizations and cyanide and chromate removal. Presents instrumentation, maintenance and troubleshooting. Includes operations, laboratory testing and associated mathematics.

ESOL 001 Elementary English for Speakers of Other Languages  
Prerequisites: Demonstrated ability to write and understand simple statements and questions on familiar topics. The suggested range on the English Placement Test is 20-35. Emphasizes writing elementary statements, reading and understanding elementary materials, and expanding competence in speaking and listening.

ESOL 002 Intermediate English for Speakers of Other Languages  
Prerequisites: Demonstrated intermediate competency in English with ability to read, write, and speak using basic language skills. The suggested range on the English Placement Test is 36-52. Emphasizes writing, reading and speaking with increasing competence in academic and social situations.

ESOL 003 Pre-academic English for Speakers of Other Languages  
Prerequisites: Demonstrated fair control of most sentence structure, expository materials, statement, and conversation in social and academic settings. The suggested range on the English Placement Test is 53-68. Emphasizes paragraph organization, reading and understanding expository and academic materials through vocabulary development. Develops comprehension of social and academic conversations and lectures.

ESOL 004 Academic English for Speakers of Other Languages  
Prerequisites: Demonstrated ability to write with some ease, understand expository and academic reading material, understand lectures, and converse in academic and social situations. The suggested range on the English Placement Test is 69-83. Emphasizes expository writing, finding main ideas and details in academic text, and understanding and speaking in academic settings.

ESOL 010 English for Speakers of Other Languages – Reading I  
Prerequisites: CASAS/IRCA Pre-enrollment Appraisal. Develops basic reading skills in English using texts on subjects relating to life skills and cultural values. Emphasizes vocabulary acquisition, dictionary use, and reading strategies for basic comprehension and interpretation.

ESOL 011 English for Speakers of Other Languages – Reading II  
Prerequisites: None. Stresses comprehension skills and reading strategies using materials which focus on personal and cultural values. Focuses on vocabulary expansion, comprehension and interpretation strategies, and experience with a variety of reading styles. Provides practice in increased reading proficiency.

ESOL 012 English for Speakers of Other Languages – Reading III  
Prerequisites: None. Stresses comprehension skills and reading strategies with academic materials. Focuses on vocabulary expansion, transitional development, and critical analysis of academic writing. Provides practice in increased reading proficiency.

ESOL 013 English for Speakers of Other Languages – Listening/Speaking I  
Prerequisites: CASAS/IRCA Pre-enrollment Appraisal. Focuses on listening and speaking strategies for comprehensive input. Provides practice recognizing and producing speech patterns of American English. Allows for conversational practice on topics of cultural values and behaviors.

ESOL 014 English for Speakers of Other Languages – Listening/Speaking II  
Prerequisites: Level 1 ESL Listening/Speaking Mastery. Provides practice in recognizing and producing speech patterns of American English. Allows for conversational practice with emphasis on cross-cultural values and behaviors and the use of idioms.

ESOL 015 English for Speakers of Other Languages – Listening/Speaking III  
Prerequisites: Level 2 ESL Listening/Speaking Mastery. Provides experience in recognizing and producing speech patterns of American English. Allows for oral communication practice relating to academic and cultural subjects with an emphasis on critical thinking skills expressed verbally. Gives the student ample exposure to language use from sources both in and out of the classroom. Language tasks which require problem solving by interpersonal communications.

ESOL 016 English for Speakers of Other Languages – Grammar/Structure I  
Prerequisites: CASAS/IRCA Pre-enrollment Appraisal. Focuses on the acquisition of basic patterns of structure and syntax for controlled
communication. Emphasizes form, meaning, and usage of basic structures in American English. Provides practice through extensive and varied communicative activities.

ESOL 017 English for Speakers of Other Languages - Grammar/Structure II 3 Credits
Prerequisites: Level I ESL Grammar/Structure Mastery. Focuses on the study and acquisition of patterns of advanced structure and syntax. Emphasizes the acquisition of sentence structure for verbal and written communication of ideas and their relationship.

ESOL 018 English for Speakers of Other Languages - Grammar/Structure III 3 Credits
Prerequisites: ENGL 017. Focuses on the acquisition of more advanced patterns of structure and syntax. Emphasizes the development of competent verbal and written expression in critical analysis for academic purposes.

ESOL 019 English for Speakers of Other Languages - Writing I 3 Credits
Prerequisites: CASAS/IRCA Pre-enrollment Appraisal. Focuses on conventions for basic written communication in English, emphasizing sentence construction and paragraph development. Uses writing strategies to produce coherent expression in journals, free writing exercises, paragraphing, and short essays. Student collaboration is part of the learned writing process.

ESOL 020 English for Speakers of Other Languages - Writing II 3 Credits
Prerequisites: Level I ESL Writing Mastery. Focuses on techniques of written communication for coherent expression of ideas, through paragraph development and essay writing. Emphasizes the writing process using strategies for pre-writing, development, and revision through peer collaboration. Highlights the structure and syntax of written expression for effective communication.

ESOL 021 English for Speakers of Other Languages - Writing III 3 Credits
Prerequisites: Level II ESL Writing Mastery. Focuses on techniques of written communication for the analysis and elaboration of academic material through paragraph and essay writing. Emphasizes the strategies of the writing process through rhetorical modes of composition for varied purposes. Stresses the extended use of syntax and structure for thoroughly coherent expression.

FIRE 100 Fire Suppression 3 Credits
Prerequisites: None. Designed for non-firefighters. An introduction to the fire service. Terminology, history, and basic firefighting skills are applied.

FIRE 101 Fire Technology 3 Credits
Prerequisites: None. A general introduction to the study of fire science. This course examines the history and growth of the fire service from its beginning to modern day firefighting. Covers the life safety code (NFPA-101), fire protection systems, firefighter safety and survival, along with identifying and analyzing the fire problems we face in the fire service today. Also covers what fire is, the chemical hazards of combustion and related by-products of fire. Fire department organization, administration, operations, and basic firefighting strategies and tactics, as well as community fire protection strategies will be covered.

FIRE 102 Fire Apparatus and Equipment 3 Credits
Prerequisites: None. Examines in detail the various types of apparatus on the market today. Study is made of pumper, aerials, elevating platforms and special apparatus. The students utilizing NFPA standards 1901, 1904, and 1500, will identify the proper chapters on a given situation. Topics will include: apparatus placement on an emergency incident, types of pumps, tests, equipment, drafting, relay, nozzles, fittings and hose layout, and maintenance on various types of apparatus. Apparatus driving may be covered and practiced. When taken with the Hydraulics class, may prepare students to take the IDHS certification test on Pumping Apparatus.

FIRE 103 Fire Fighting Strategy and Tactics 3 Credits
Prerequisites: None. The course prepares students to make responsible decisions concerning incident objectives and the development of various strategies and tactics at the company level. Areas covered include pre-incident planning, size up and the development of strategic options. Also, the student will learn basic building construction, fire behavior, fire control, fire ground factors, fire stream management and support activities. Responsibilities of engine and ladder companies are discussed. Emphasis is placed on safety in all the above areas. Command scenarios are used throughout the course. The NIMS/ICS is used as the Incident Command System of choice.

FIRE 104 Building Construction Fire Service 3 Credits
Prerequisites: None. Examines the design principles involved in the protection of a structure from fire involvement. Additionally, the signs, symptoms, and indicators of partial or total building collapse during fire-fighting operations are studied. The course includes the study of legislative codes and laws concerning the following: building design, building fire safety, classification of building construction, blueprint reading, plan review and in-house fixed fire protection.

FIRE 106 Fire/Arson Investigator 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 040 and ENGL 032. Focuses on the responsibility of the firefighter, the investigator, and the department in fire scene investigations. Fire cause and loss, collection and preservation of evidence and determination of fire origin will be studied. Emphasis will be placed on the application of various scientific aids that assist in investigations. Hands-on labs with property and vehicle investigations will be included. On completion of this course the student is eligible to take the national testing certification for Fire Investigator I.

FIRE 108 Fire Inspection/Code Enforcement 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 040 and ENGL 032. Examines the function of the fire inspector and organization of the fire prevention unit. Emphasizes the identification of the various codes and regulations utilized by the inspector; with special attention given to the Indiana Fire Code and IFSTA Fire Inspection and Code Enforcement. Includes the legal authority governing fire prevention, applications of the fire code, and management's principles as applied to a bureau.

FIRE 109 Fire Department Specifications 3 Credits
Prerequisites: None. Specifications for firefighting apparatus, equipment, protective clothing, facilities and other sources of materials necessary to a fire department. The student will have a better understanding of NFPA Standards 1500 and 1901.

FIRE 116 Fire Fighter I 3 Credits
Prerequisite: None. Corequisite: FIRE 117. This course is designed to be an entry level training program coupled with Fire Fighter II. Introduces the student to the fire service, terminology, history and basic firefighting skills needed to complete and pass the requirements as designed by the Department of Homeland Security for Basic, Mandatory and Fire Fighter I.

FIRE 117 Fire Fighter II 3 Credits
Prerequisite: None. Corequisite: FIRE 116. This is a companion course to Fire Fighter I and expands upon the principles and techniques of fire fighting. Students will study fire protection systems, firefighter safety and survival. This course will also cover what fire is, the chemical hazards of combustion and related by-products of fire. Fire department organization, administration, operations, and basic strategies and tactics will be covered.

FIRE 201 Fire Protection Systems 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 040 and ENGL 032. Provides an introduction into fire alarm monitoring devices and extinguishing systems. A strong base for application to either fire protection or a commercial application can be developed. Technical areas to be covered: fire extinguishing agents, portable fire extinguishers, carbon dioxide systems, dry chemical systems, halogenated systems/foam systems, explosive suppression systems, thermal/smoke flame detection systems, and building monitoring systems. Standpipe and sprinkler systems will be covered in detail.

FIRE 202 Fire Service Management 3 Credits
Prerequisites: None. Principles and functions of administrative and management personnel in the fire service. Topics discussed include:
FIEN 204 Fire Service Hydraulics 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and MATH 020. A study of compressible fluids including: fluid properties, principles of fluid statics, flow system principles, pipe friction and head loss, flow measurements, pumps, and other appliances and hydraulic devices. Applications are related to fire protection systems, water supply systems, and foam systems.

FIEN 205 Aircraft Firefighting 3 Credits
Prerequisites: None. Examines the hazards associated with aircraft firefighting. Emphasis will be placed on lecture and practical use of aircraft firefighting equipment, extinguishing agents, strategy and tactics, rescue methods, and aircraft design and construction.

FITN 100 Lifetime Fitness and Wellness 2 Credits
Prerequisites: None. Educates students about the importance of fitness/wellness in their everyday lives. Students will have the opportunity to customize their own behavioral plans for fitness/wellness.

FORN 101 Introduction to Forensic Science 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 025 or MATH 023 and ENGL 025 and ENGL 032. Introductory course dealing with the basic concepts in Forensic Science. Includes lab.

FORN 203 Crime Methods and Techniques 4 Credits
Prerequisites: FORN 101 and CHMT 101. Advanced course addressing laboratory techniques used in Forensic Science. Includes lab.

FREN 101 French Level I Transfer IN 4 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An introductory course in French. Introduces the French language and Francophone culture through communicative activities intended to develop oral communication skills and listening comprehension skills. Emphasis is placed on learning basic grammar and vocabulary necessary for successful communication while laying a foundation for further study.

FREN 102 French Level II Transfer IN 4 Credits
Prerequisites: FREN 101 French Level I or demonstrated competency in French through appropriate assessment; demonstrated competency in reading and writing through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Continues the study of French for students who have had the equivalent of one semester of college-level French. Introduces additional grammatical structures and vocabulary to further develop listening, speaking, reading, and writing skills as well as an appreciation of the cultures of the Francophone world.

FREN 201 French Level III 4 Credits
Prerequisites: FREN 102 French Level II or demonstrated competency in French through appropriate assessment; demonstrated competency in reading and writing through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. French is the primary medium of instruction. The goal of the course is to continue the development and reinforcement of the skills of the target language: listening, speaking, and writing. Students will be introduced to the grammar/syntax and vocabulary building and introduced French civilization through conversation coordinated with the reading of cultural and literary texts as well as written and oral reports.

FREN 202 French Level IV 4 Credits
Prerequisites: FREN 201 French Level III or demonstrated competency in French through appropriate assessment; demonstrated competency in reading and writing through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. French is the primary medium of instruction. The goal of the course is to continue the development and reinforcement of the skills of the target language: listening, speaking, and writing at an advanced level. The course continues the study of grammar/syntax and vocabulary building and introduces the study of French and Francophone civilizations through readings, both journalistic and literary, and reinforced through class discussions as well as written and oral reports.

GENS 279 General Studies Capstone Course 1 Credit
Prerequisites: Successful completion of 40 program hours and Program Advisor Approval. Provides a culminating experience designed to demonstrate the student's mastery of information literacy: ethical and responsible behavior; political, social, and environmental responsibility; and diversity awareness, both in general and in the student's area of concentration. May require a research project, presentation, and/or portfolio. Requires students to complete two sections of a college-approved standardized assessment of proficiency in math, writing, scientific inquiry, and/or critical thinking.

GEOG 207 World Geography 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. A geographical analysis of the major physical, cultural, political and economic divisions of the world along with their characteristics, locations, human activities, and inter-relationships.

GRAM 101 Graphic Media Fundamentals 3 Credits
Prerequisites: None. Explores fundamentals of graphic art production.

GRAM 201 Photomechanical Reproduction 3 Credits
Prerequisites: None. Corequisites: GRAM 104. Provides an introduction to the reproduction of color in printed materials. Covers techniques and materials with assignments utilizing different processes including color art as well as spot color. Pre-separated negatives, halftones, registration, and runs are covered. Includes in-depth study of inks and colorinking systems. Also covers digital color separations.

GRAM 202 Science of Color 3 Credits
Prerequisites: None. Covers the physical properties of light and color and the psychological aspects of color perception and color relationships. It develops an acute awareness of the use of color and color theories in various visual and written terms. It covers primary, secondary, and tertiary colors, their creation and use through a series of hands-on projects.
Students will create theme gardens with an emphasis on plant combinations, color, function and aesthetics. Includes studies in water, shade, wildlife, native, low-maintenance and container gardens.

HAZM 205 DOT Regulations
Prerequisites: None. A detailed study of the U.S. Department of Transportation (DOT) regulations. Students shall be introduced to certain Nuclear Regulatory Commission and Environmental Protection Agency regulations pertinent to hazardous materials transportation.

HAZM 220 Hazardous Materials Recovery, Incineration and Disposal
Prerequisites: HAZM 100. The methods of recovery, incineration and/or disposal of hazardous waste. Topics include contracting qualified disposal organizations, obtaining permits and ensuring regulatory compliance of hazardous waste. Topics include contracting qualified disposal organizations, obtaining permits and ensuring regulatory compliance of hazardous waste.

HCMG 125 Health Care Systems and Trends
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. An introduction to the health care industry emphasizing the systems approach to health care and the current trends facing the industry. Gives special attention to managed care organizations.

HCMG 225 Finance and Budgeting for Health Care
Prerequisites: ACCT 101. Importance is placed on the development and use of departmental budgets. Financial statements will be used to project future expenses and revenues for an organization and/or department. Emphasizes the reimbursement process for a managed care environment and purchasing procedures.

HCMG 226 Organizational Development in Health Care
Prerequisites: BUSN 105 and HCMG 125. Examines organizational structure in health care organizations, including traditional structures and reengineering of the health care industry. Covers staff development, training, job analysis and design, and departmental staffing. Discusses medical ethics.

HIMT 101 Health Information Systems
Prerequisites: Program Advisor Approval. Provides opportunity for the investigation of career opportunities, ethics, history, and functions of a health information management profession. Presents the origin, content, and development of patient indices and patient records. Overview of the design, maintenance and use of manual and computerized health information systems for filing, numbering, and storage of patient information.

HIMT 102 Health Data Content and Structure
Prerequisites: Program Advisor Approval. Introduction to health data collection methods for health information systems. Study of the
HIMT 104 Health Information and the Law  
Prerequisites: Program Advisor Approval. Presents the substantial changes brought about by HIPAA and the growth of electronic health records systems and electronic data networks. Discusses the state laws affecting the use and disclosure of health information and the complex interplay of federal and state health information privacy laws. Addresses the challenging area of how patient information may be used in connection with medical research.

HIMT 105 Healthcare Organizations and Delivery Systems  
Prerequisites: Program Advisor Approval. Provides an overview of the organization of healthcare delivery, including the various types of healthcare institutions, accreditation standards, licensure and regulatory agencies, and payment and reimbursement systems. Emphasizes the maintenance of data accuracy, security, privacy, and confidentiality in manual and computerized information systems.

HIMT 201 Reimbursement Systems  
Prerequisites: HIMT 101, HIMT 102 and HIMT 105. Presents data elements that apply to prospective payment systems. Enables students to gain knowledge of reimbursement systems and to identify issues and patient characteristics in meeting medical necessity guidelines.

HIMT 202 Healthcare Data Literacy and Statistics  
Prerequisites: HIMT 101, HIMT 102 and MATH 135 or MATH 136. Compilation and usage of various types of administrative and healthcare statistics including vital records. Includes an overview of the health information research process and the use of computers for data management.

HIMT 203 ICD Coding  
Prerequisites: HIMT 101, HIMT 102 and HIMT 210. Includes International Classification of Diseases (ICD) assignment and sequencing of codes in accordance with approved guidelines.

HIMT 204 Quality Assessment and Improvement  
Prerequisites: HIMT 101, HIMT 102 and HIMT 105. Presents the history and development of quality assurance in various healthcare facilities. Includes quality assessment techniques, utilization management, risk management, credentialing, and medical staff services as related to health information management.

HIMT 205 Organization and Supervision  
Prerequisites: HIMT 101, HIMT 102 and HIMT 105. Includes principles and practices essential to the efficient supervision and management of health information departments including planning, organizing, directing, and controlling health information processes, personnel, finances, and space.

HIMT 207 Health Information Externship I  
Prerequisites: Program Advisor Approval. Provides the student with the opportunity to apply acquired health information technical knowledge in healthcare settings.

HIMT 208 Health Information Externship II  
Prerequisites: Program Advisor Approval. Provides the student with the opportunity to apply acquired health information technical knowledge in healthcare settings.

HIMT 210 Pathophysiology and Pharmacology I  
Prerequisites: APHY 102 and HLHS 101. Covers etiology, treatment, pharmacology, and prognosis of diseases associated with body systems.

HIMT 213 CPT Coding  

HIMT 219 Pathophysiology and Pharmacology II  
Prerequisites: HIMT 210. Continuation of HIMT 210 to cover the etiology, treatment, pharmacology and prognosis of disease associated with body systems.

HIST 101 Survey of American History I  
Transfer IN 3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Covers major themes in American history including exploration and expansion of the New World; the colonial period; causes and results of the American Revolution; the development of the federal system of government; the growth of democracy; early popular American culture; territorial expansion; slavery and its effects; reform movements, sectionalism; causes and effects of the Civil War.

HIST 102 Survey of American History II  
Transfer IN 3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Covers major themes including the post-Civil War period, western expansion, industrial growth of the nation and its effects, immigration and urban discontent and attempts at reform, World War I, the Roaring Twenties, social and governmental changes of the thirties, World War II and its consequences, the growth of the federal government, social upheaval in the sixties and seventies, and recent trends in conservatism, globalization, and cultural diversity.

HIST 111 World Civilization I  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Presents the key individuals, events, and schools of thought which have most greatly impacted societal development and world history up to 1600. The target civilizations of study include Oriental, Middle East, Western Europe, Africa, and the Americas. Discusses the political, economic, social and cultural evolution of human civilization.

HIST 112 World Civilization II  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Presents the key individuals, events and schools of thought, which have most greatly impacted societal development and world history since 1500. Key movements and events of the periods will be studied. Discusses the political, economic, social and cultural evolution of civilization.

HIST 125 History of American Technology  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Examines the technological development of the United States. Emphasis will be given not only to the inventions themselves but the reasons why such technology was needed and what influence the technology has had on American society.

HIST 201 Latin American History and Culture: Prehistory to 1824  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. An historical survey of Latin American history, institutions, culture, and art form pre-Columbian times to colonial times, with emphasis on the evolution of civilization and culture in the countries of South and Central America and the Caribbean basin.

HIST 202 Latin American History and Culture: 1824 To Present  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. A historical survey of Latin American history, institutions, culture, and art from Independence to the emergence of modern Latin American nations, with emphasis on the civilization and culture in the countries of South and Central America and the Caribbean basin.

HIST 210 African-American History  
3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. An historical survey of African American history, institutions, culture, and art from pre-Columbian times to the present, with emphasis on the evolution of civilization and culture in the countries of Africa, Africa-related communities, and the African Diaspora.
assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Covers major themes of African-American history, its social and economic meaning, the struggle for freedom and social and political equality; contributions of African-Americans to cultural life in the United States and the world.

HLHS 100 Introduction to Health Careers 3 Credits
Prerequisites: None. Presents information on the health care system and employment opportunities at a variety of entry levels. Includes an overview of health care delivery, how health delivery systems are organized, legal and ethical considerations of health care delivery, and an overview of various health care professions. Students are encouraged to explore health professions through assignments, observations and interviews.

HLHS 101 Medical Terminology TransferIN 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Addresses basic terminology required of the allied health profession and provides a basic knowledge of anatomy and physiology, pathology, special procedures, laboratory procedures, and pharmacology. Greek and Latin prefixes, suffixes, word roots, and combining forms are presented. Emphasis is on forming a foundation for a medical vocabulary including meaning, spelling, and pronunciation. Medical abbreviations, signs, and symbols are included.

HLHS 103 Dosage Calculation 1 Credit
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 031 and MATH 050 or MATH 015 or MATH 023. Introduces the mathematical concepts required of the allied health professional to accurately administer medication.

HLHS 104 CPR/Basic Life Support 0.5 Credit
Prerequisites: None. Provides students with information necessary to recognize the need for one and two-person cardiopulmonary resuscitation (CPR) as it relates to adults, children, and infants. Requires students to safely perform CPR and the use of Automated External Defibrillator (AED).

HLHS 105 Medical Law and Ethics 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Provides an overview of law and ethics for allied health professionals functioning in a variety of settings. Topical areas include: the legal system, standards and scope of care and practice, physician-patient relationships, standards of professional conduct, public duties, documentation, employment laws and practices, pertinent federal/state statutes, ethical codes, and bioethical issues. The content will provide an understanding of ethical and legal obligations to self, patients, and employer.

HLHS 106 Health Care Support Certifications 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Provides students with information necessary to recognize and safely perform one and two-person cardiopulmonary resuscitation (CPR) as it relates to adults, children, and infants including use of the AED. Successful demonstration of principles and theory related to bloodborne pathogens, HIPAA, Department of Transportation urine drug screening and First Aid will result in the granting of appropriate certifications.

HLHS 107 CNA Preparation 5 Credits
Prerequisites: Regulations per the Indiana State Department of Health and Program Advisor Approval. Prepares individuals desiring to work as nursing assistants with the knowledge, skills, and attitudes essential for providing basic care in extended care facilities, hospitals and home health agencies under the direction of licensed nurses. Presents information on the health care system and employment opportunities at a variety of entry levels. Includes an overview of the health care delivery systems, health care teams and legal and ethical considerations. Individual who successfully complete this course are eligible to apply to sit for the Indiana State Department of Health (ISDH) certification exam for nursing assistants. This course meets the minimum standards set forth by the ISDH for Certified Nursing Assistant training.

HLHS 108 Advanced Cardiac Life Support 1 Credit
Prerequisites: Successful completion of American Heart Association Basic Life Support Course including CPR for Adult, Child, Infant and AED. Provides students with information necessary to provide advanced cardiac life support safely using case scenarios, mock codes and following American Heart Association protocol and algorithms.

HLHS 109 Pediatric Advanced Life Support 1 Credit
Prerequisites: Successful completion of American Heart Association Basic Life Support Course including CPR for Adult, Child, Infant and AED. Provides healthy providers with sufficient knowledge to initiate advanced life support in a pediatric emergency, either in or out of hospital. Enhances the students' skills in evaluation and management of an infant or child respiratory and cardiac emergencies including cardiac arrest according to the 2005-2006 standards/guidelines of the American Heart Association.

HLHS 110 Tuberculosis Training 0.5 Credit
Prerequisites: None. Provides instruction to the participant on the classifications of tuberculosis, the incidences of tuberculosis and disease, the common diagnostic procedures for tuberculosis, the common treatment regimens for tuberculosis, the correct techniques for administering a Mantoux skin test and the correct method of reading and recording the results of a Mantoux skin test. The students will be given a validation card from the ISBH (Indiana State Board of Health) and the ALA (American Lung Association) after successful completion of the course according to criteria set forth by both of the validating agencies.

HLHS 111 Health and Wellness for Life 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. This course promotes the development and maintenance of health and wellness throughout life. Current topics of interest such as stress management, nutrition, fitness, environmental health, and changing needs during various stages of life are explored. Students evaluate their own health and risk factors associated with modern lifestyles.

HLHS 113 Dementia Care 3 Credits
Prerequisites: None. The course will introduce the student to the disease process and aspects of caring for a resident with dementia. This course will include instruction about treating the patient with dementia as a person, medical treatment of dementia, the importance of proper communication, making the environment safe for a person with dementia, including the family in caring for the client with dementia, as well as how to plan activities that are meaningful and fun for the patient with dementia. The course will meet the requirements outlined in the Indiana State Department of Health regulations of health care workers in long-term care facilities.

HLHS 114 Home Health Aide 5 Credits
Prerequisites: None. Course provides students with knowledge and practical skills necessary to function as a home health aide. It follows the established content criteria of the Indiana Home Health and Hospice Association for career-ladder certifications for Trained Homemaker/Companion, Trained Personal Care Attendant I, Trained Personal Care Attendant II, and concluding with Trained Home Health Aide. Upon completion of each area, students will be eligible to apply to take the corresponding written and skills examinations for certification in each level. Inclusion on the Indiana State Department of Health Home Health Aide Registry is facilitated by home health/hospice employers after employment and verification of required skills competency. Curriculum meets minimum requirements outlined in Federal OBRA-87 regulations for home health aides.

HLHS 115 Pharmacology for Health Care Support 3 Credits
Prerequisites: APHY 101 or APHY 203. Introduces general pharmacology for health related professions including an overview of the history of drugs, federal and state regulations for the prescribing and distribution of therapeutic drugs, drug classifications, routes of administration, drug dosage calculations, and how to use printed and electronic sources of drug information. Emphasis will be given to selected drugs in various drug classifications to develop student understanding of the use, side-effects, contraindications, and potential drug interactions that are unique to each drug.
HLHS 117 QMA Preparation
5 Credits
Prerequisites: Program Advisor Approval and regulations per the Indiana State Department of Health; demonstrated ability to read and write in English; demonstrated ability to perform the four basic mathematical functions, proof of high school diploma or GED, proof of being at least 18 years of age, proof of completion of Indiana CNA course or its equivalent and inclusion on Indiana Nurse Aide Registry, documentation of at least 1000 hours of work experience as CNA within two years prior to applying to become a QMA; other regionally determined registration requirements. Course meets the minimum standards set forth by the ISDH for Qualified Medication Aide (QMA) training and provides students with knowledge and skills needed to administer approved medications in long term care settings. Classroom instruction is provided, followed by clinical training that is supervised one-on-one by a licensed nurse. Common medications in current use are discussed according to body systems, with emphasis on classification, uses, routes of administration, dosages, interactions, incompatibilities, and side effects. Also addressed are communication, standard precautions, safety, residents' rights, documentation, scope of practice of the QMA, legal aspects, and patient education. Individuals who successfully complete this course are eligible to apply for the Indiana State Department of Health (ISDH) competency evaluation test for Qualified Medication Aides.

HLHS 211 Nutrition
3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and HLHS 111. Introduces the principles of nutrition and diet therapy for various age groups. Considers socioeconomic, ethnic, and religious factors related to diet. Also focuses on nutritional issues often presented in a healthcare setting, such as weight management, diabetes education, nutritional deficiencies and recommended treatments, nutritional assessment techniques, and the special nutritional needs of individuals with specific health disorders.

HLHS 211 Nutrition
3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and HLHS 111. Introduces the principles of nutrition and diet therapy for various age groups. Considers socioeconomic, ethnic, and religious factors related to diet. Also focuses on nutritional issues often presented in a healthcare setting, such as weight management, diabetes education, nutritional deficiencies and recommended treatments, nutritional assessment techniques, and the special nutritional needs of individuals with specific health disorders.

HOSP 105 Introduction to Baking
3 Credits
Prerequisites: None. Corequisites: HOSP 101. Fundamentals of baking science, terminology, ingredients, and common agricultural practices. Students will receive instruction in preparation of breads, pastries, and other baked goods.

HOSP 106 Pantry and Breakfast
3 Credits
Prerequisites: HOSP 102 and HOSP 105. The principles and techniques needed in the preparation of breakfast and lunch items are discussed. Students will receive instruction on preparation of breads, pastries, and other baked goods.
ment or earning a grade of "C" or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Developing an understanding of the hospitality industry and career opportunities, and responsibilities in the food service and lodging industry. Introduces procedures for decision making which affects operation management, products, labor, revenue.

**HOSP 115 Diet Therapy** 4 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. The basic principles of nutrition; the role nutritionists play in maintaining good health as well as their affect on certain disease states. Students will learn to modify diets to meet various nutritional needs and to plan menus using modified diet principles.

**HOSP 116 Dietary Management I** 4 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. The basic principles of management and supervision. The course is designed to teach skills necessary to goals of a person wishing to become a dietary manager.

**HOSP 117 Dietary Management II** 4 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Basic principles of management and supervision for the dietary professional. Skills learned through course and included practice are applicable to management level positions.

**HOSP 118 Resident Clinical Assessment Practicum** 4 Credits
Prerequisites: HOSP 117. Developing an in-depth understanding of the principles of diet therapy. Students will learn to assess patients' nutritional needs, develop care plans, and implement a delivery system. Students will also learn documentation skills required by HCFA.

**HOSP 144 Travel Management** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. A systematic overview of the travel industry. The class provides comprehensive and critical information on a broad range of travel services, products, and issues.

**HOSP 171 Introduction to Convention/Meeting Management** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. An understanding of the convention/meeting management industry including the roles of various service providers, space requirements, and uses of convention facilities.

**HOSP 172 The Development and Management of Attractions** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032, and MATH 044 or MATH 015. The process of developing visitor attractions and provides for a discussion of the issues involved in their management.

**HOSP 173 Special Event Management** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment. This course is designed as a detailed look at the planning of social events, such as theme parties and weddings, planning for fundraising events, planning recognition events, and planning entertainment for events. Topics included are different event types, design and creativity for events, use of contractors and suppliers, incorporating of sponsors, use of volunteers, and ethical and legal considerations of event planning. This course will be a foundation for students preparing for a career in event planning, as well as continuing education for those currently employed in the event industry. Students in this course will engage in experiential learning by becoming actively involved in the planning, preparation and execution of events facilitated by the instructor.

**HOSP 201 Hospitality Purchasing and Cost Control** 3 Credits
Prerequisites: MATH 111 or MATH 118 or demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 035 or MATH 043. Presents the essentials of effective food and beverage control while establishing systems for sale values of food and beverages that are outlined. This course addresses the application of the four-step control process to the primary phases of foodservice operations: purchasing, receiving, storing, issuing, and production. Labor costs and sales forecasting are analyzed.

**HOSP 202 Fish and Seafood** 3 Credits
Prerequisites: HOSP 101, HOSP 102 and HOSP 103. Emphasizes the importance of fish and seafood in today's market. The student will become familiar with the different varieties and characteristics of fish and seafood. Students will learn the basic principles of structure, handling, and cooking to utilize the many varieties of seafood in a systematic way. The course will cover proper buying, storage, preparation and merchandising of fish and seafood. The course provides hands-on experience in boning, cutting, and cooking methods appropriate for seafood.

**HOSP 203 Menu, Design and Layout** 3 Credits
Prerequisites: HOSP 201. Applying the principles of menu planning, pricing, and layout to the development of menus for a variety of types of facilities and service. The major project will be to develop a menu, design and layout of a hospitality facility.

**HOSP 207 Table Service** 3 Credits
Prerequisites: HOSP 101 and HOSP 102. Provides students with practical knowledge and skills of restaurant operations. Knowledge and appreciation of the relationship between "front" and "back" of the house is emphasized through operation of an actual food service environment. Quality of service is emphasized through management of the guest experience. Additional course work will include tableside service and the study of beverages and wines.

**HOSP 208 Cakes, Icings, and Fillings** 3 Credits
Prerequisites: HOSP 105. Requires students to produce and finish a variety of cakes. The course emphasizes application techniques, color coordination, and the flavor and texture of fillings. Students will practice the techniques of classic cake decorating.

**HOSP 209 Advanced Decorating and Candies** 3 Credits
Prerequisites: HOSP 208. The second in a series in decorating techniques and candy making. Students will construct classical and contemporary candy products including centerpieces and/or showpieces made with selected confectionery mediums.

**HOSP 210 Classical Cuisine** 3 Credits
Prerequisites: Program Advisor Approval. Presents advanced and sophisticated classical culinary methods following the principles and techniques of Escoffier. Students will advance cooking techniques, timing, and presentation and learn history and terms pertaining to classical foods and menus with emphasis on French cuisines.

**HOSP 211 Specialized Cuisine** 3 Credits
Prerequisites: HOSP 106, HOSP 110, and HOSP 207. Students will be introduced to foods from various cultures. Students will gain a sense of the history of foods from various countries as well as develop skills in preparation of these foods. Students will advance skills in table service as well as tableside preparation.

**HOSP 212 Gastronomy** 3 Credits
Prerequisites: HOSP 106. Helps students develop skills in producing a variety of hot- served cold food products as it relates to the gastronomic area. Students will prepare items for buffet presentation, including decorative pieces such as tallow and ice sculptures.

**HOSP 213 Classical Pastries and Chocolates** 3 Credits
Prerequisites: 30 hours of program studies including HOSP 105. This course addresses classical French and European desserts, including the preparation of goods such as Neapolitan, Gateau St. Honoré, petit fours and petit fours sec, ganaches, pastry creams and fillings, sauces, flans and tarts, and European sponges. The course also includes instruction in tempering of chocolates, molding, and chocolate plasticite. Preparation of trifles, pastillage and marzipan, short doughs, and meringues. The student will be instructed in the latest preparation methods, innovative ideas for impressive plate presen-
HOSP 215 Front Office 3 Credits
Prerequisites: HOSP 114 and MKTG 101. Presents a systematic approach to front office procedures, detailing the flow of business through a hotel beginning with the reservation process and ending with billing and collection procedures within the context of the overall operation of a hotel. Students will examine front office management, the process of handling complaints and concerns regarding hotel safety and security. Students will become involved in the processes for forecasting future business, sales, and rate structure of the hotel as well as methods for budgeting hotel finances for success.

HOSP 217 Housekeeping 3 Credits
Prerequisites: HOSP 114 and MKTG 101. Introduces the fundamentals of housekeeping operations. Emphasis is placed on employee development, management skills, OSHA standards and property maintenance and up-keep. Budgeting, cost controls, proper staffing, and planning a fiscal budget are also emphasized in this course.

HOSP 220 Biology and Chemistry of Food Manufacturing 3 Credits
Prerequisites: BIOL 121 and CHEM 105. An introduction to basic biology and chemistry that contribute to the success of modern food production. Emphasis will be given to the science behind the manufacturing of food products from basic microbiology and fermentation to future contributions of genetic engineering. In addition, the student will learn the rationale behind food spoilage, good quality control, and sanitation methodology in food production environments.

HOSP 221 Catering Administration 3 Credits
Prerequisites: Program Advisor Approval. Provides instruction in the fundamentals of catering: including the business of supplying food, goods, and organized service for public and private functions. Subjects to be covered include staffing, equipment, transportation, contracting, special arrangements, beverage service and menu planning. Students will practice techniques of setting up banquets and buffets. Students are required to plan, budget, cost, test recipes and formats, plan décor, service and entertainment for catered events.

HOSP 230 Wedding Cake Production I 3 Credits
Prerequisite: HOSP 208. This course will introduce the student to the fundamentals of wedding cake production. It will engage the student in elementary, handmade production of various styles of products including stacked and separated tiered cakes. In addition, this course will review and expand upon decorating techniques covered in HOSP 208. It further engages the student in decorative techniques of select cakes. The student will apply the basic principles of sanitation and safety in the foodservice operation. Student will apply the fundamentals of baking science to the preparation of a variety of wedding cakes, icings, and fillings.

HOSP 231 Wedding Cake Production II 3 Credits
Prerequisite: HOSP 208, HOSP 230. This course will build on the fundamentals of wedding cake production acquired in Wedding Cake Production I. It will engage the student in advanced, handmade production of various styles of advanced decorating techniques including rolled fondant, gum paste decorations, and pastillage and piping techniques. Successful completion of this class should provide the student with sufficient skills to acquire and excel in a job as an advanced wedding cake decorator.

HOSP 232 Plated Desserts and Pastry Salon Work 3 Credits
Prerequisite: HOSP 209, HOSP 230. This course will build on the fundamentals mastered in Classical Pastries and Advanced Decorating and Candies. The class will focus on developing plated desserts that are appropriate for restaurant and hotel menus. Themes include: balancing a dessert menu with flavors, textures, temperatures and visual appeal, seasonality of ingredients. Emphasis will be placed on creative plate presentation and artistry. The class will look at the production restrictions that may be present under different shop conditions. It will take into account challenges presented by staffing, facility and service volume. The salon portion of the class will give an overview of competitive pastry work based on ACF student standards. Final project will be an intra-class, team, salon competition.

HOSP 270 Bakery Merchandising 3 Credits
Prerequisites: Program Advisor Approval. Education and practice in merchandising techniques with an emphasis on the baking and pastry field. The majority of a student’s time will be spent in all pertinent phases of retail bakeshop operation or in the field observing merchandising in action.

HOSP 271 The Mechanics of Meeting Planning 3 Credits
Prerequisites: HOSP 171. An in-depth examination of the meetings and conventions industry, this class will focus on the operational aspects of the various industry segments and the in-conference interactions of each. The course will provide an in-depth study and application of the techniques used for successful meetings, conventions and exhibitions. The text used is one of the main components used to study for the Certified Meeting Professional (CMP) examination—the highest level of expertise in meetings management. Class activity will help prepare the student for the CMP examination.

HOSP 272 The Tourism System 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Designed to develop an understanding of travel trends and modes and the social, environmental, and economic impact on destination areas. The course explores major concepts in tourism, what makes tourism possible, and how tourism can become an important factor in the wealth of any nation. Emphasis is given to local, regional, and national tourism.

HOSP 280 Co-op/Internship 3 Credits
Prerequisites: Program Advisor Approval. A practical experience in a commercial/non-commercial foodservice or hotel establishment in order to build specialized skills. This work-based experience provides an opportunity for students to transfer their academic preparation into actual work-based learning by acquiring "real world" skills and building ties with the business/professional community. (Students should have a site in mind prior to registering for this course—coordinator will assist.)

HPER 205 Structural Kinesiology 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. Fundamental concepts concerning industrial, mechanical, and chemical aspects of the musculoskeletal and neuromuscular structures. Emphasis is placed on practical application to study and teaching of skills and movement. Laboratory sessions focus on anatomy of the musculoskeletal system with application to human movement in sport, physical education, and daily activities.

HPER 211 Introduction to Sport Management 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. An examination of the broad spectrum of career opportunities available in the sport management profession. Includes career planning, sport management terminology, and an overview of specific skills and courses required for professional preparation in sport management. Fundamental aspects of the management functions as they relate to sport and fitness organizations. A preliminary investigation of managerial roles and skills, and their effects on interpersonal, group, and organizational relationships.

HPER 212 Introduction to Exercise Science 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. An introduction to the science of exercise and human movement. Special topics in exercise physiology, sport biomechanics, sports medicine, and motor integration.

HPER 216 Current Concepts in Physical Fitness 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. Introduction to physical fitness and the role of exercise in health and wellness. Understanding concepts, principles, and guidelines for fitness exercise and related activities. Use of physical fitness assessment data to plan and carry out a personal fitness program.

HSEM 101 Introduction to Homeland Security 3 Credits
Prerequisites: None. The course provides students and practitioners...
with a comprehensive account of past and current homeland security practices, policies, and programs in relation to the government restructure. Topics include workplace security, weapons of mass destruction, domestic and international terrorism, and preparedness.

HSEM 102 Principles of Emergency Management and Planning
Prerequisites: None. The purpose of this course is to consider the context of emergency management and to demonstrate how political factors play a role in all phases of emergency management, regardless of the type or nature of the disaster event. To achieve these goals the course provides practical information drawn from disaster policy studies and case studies. This information is (wherever possible) reviewed for findings that can be generalized, that is, for lessons that are applicable to future disasters and emergencies.

HSEM 103 Basic Skills in Emergency Program Management
Prerequisites: None. The purpose of this course is to teach those considering a career in emergency management about the nature and reasons for the public's awareness of hazards and preparedness for disasters. The variety of actions taken by individuals, private and voluntary organizations, and the government to both prepare the public for the impact of disasters and provide realistic strategies to mitigate their adverse consequences.

HSEM 104 Disaster and Terrorism Awareness
Prerequisites: None. This course is an introduction to the political terrorism, ranging from low-level acts of threat and acts of violence that may represent significant risk to human life and property to largescale acts of violence using "weapons of mass destruction" that may have devastating, long-term effects. The course will address the nature of terrorism and its many forms, policies and programs to reduce the risk that terrorism presents to society, and policies and programs to manage terrorist events, and how to manage the consequences of terrorist violence.

HSEM 105 Introduction to Mitigation
Prerequisites: None. The course is designed to provide an understanding of the principles and practice of hazard mitigation in the United States at the local, state, regional, and federal levels of governance, emphasizing the importance of avoiding or preventing future and recurring losses of life and damage to public and private property. A further objective is to familiarize students with the tools, techniques, resources programs, intergovernmental relationships, and broader social context involved in planning for and implementing hazard mitigation.

HSEM 106 Disaster Response and Recovery
Prerequisites: None. This course addresses future approaches to reducing damage from natural hazards, aimed at breaking the vicious cycle of disaster/rebuilding/disaster through pre-disaster hazard mitigation programs and policies. These proactive approaches seek to stem the tide of losses from repetitive damage incurred by development within known hazard areas, such as floodplains, storm surge areas, and earthquake fault zones. We will also look at disaster policy that focuses on preparing for an imminent disaster, through evacuation and temporary property protection; responding to a disaster that has occurred, through search and rescue and debris clearance; and recovering from a past disaster, through rebuilding damaged structures.

HSEM 107 Exercise Program Design, Planning and Evaluation
Prerequisites: None. This course is designed to introduce you to the fundamentals of exercise design and to prepare you to design and conduct a small functional exercise. The concept of the Exercise Design Course is based on one important premise: emergency exercises are worth the effort. Experience data show that exercises are a practical, efficient, and cost-effective way for a community to prepare for disasters. It includes: the value of conducting exercises, the components of a comprehensive exercise program, and the exercise development process: development tasks, organization of the design team, exercise documentation, and the steps in designing an exercise. The course will also cover the purpose, characteristics, and requirements of three main types of exercises, table top, functional, and full scale exercises and the evaluation of the exercise.

HSEM 108 Introduction to Emergency Medical Services Operations
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. This course will provide an overview of the organization and structure of the EMS system, the operation of an EMS system, and the function of EMS as it relates to a Homeland Security/Emergency Management situation. Topics include management, planning, and operation of an EMS system.

HSEM 213 Weapons of Mass Destruction and Hazardous Materials
Prerequisites: None. Unique features of terrorist attacks include psychogenic casualties, significant risk to responding personnel, multiple jurisdictions and the criminal nature of the event. Course will prepare the emergency manager to better understand the threat created by terrorism and weapons of mass destruction. The successful emergency manager must recognize the threat of terrorism and WMD and be able to mitigate and prepare for such disasters to bring order to potential chaos. We will also look at various types of biohazards.

HSEM 214 Understanding the Incident
Prerequisites: None. This class will emphasize command and control of major emergencies operations at an advanced level, linking operations and safety. Areas of study include: Incident Management System, Pre-incident planning, Size up, command systems, Sectoring and staging, Support Services, Communications, News Media, Computer Aided Resources. We will utilize simulated incidents, requiring the applications of appropriate solutions to resolve the incident.

HSEM 215 Contingency Planning and Business Continuity
Prerequisites: None. This course is designed to teach students how to develop an emergency response contingency plan for a facility or community. Preparedness includes analyzing the hazards, writing and implementing the contingency plans, training employees for an emergency, and evaluating the effectiveness of the contingency plan.

HSEM 216 Public Information Officer Course
Prerequisites: None. The Public Information Officers Course is aimed at the new or less experienced PIO including those individuals who have function as a secondary responsibility. Course topics include an overview of the job of the PIO, understanding the media, interview techniques, writing a news release and conducting public awareness campaigns. Additionally, application of public information skills to a major emergency or disaster situation will be discussed. This is accomplished with a series of lecture presentations and exercises over the course.

HSEM 280 Internship in Homeland Security and Emergency Management
Prerequisites: Program Advisor Approval. The course provides fieldwork experience in an approved city or county Emergency Management Agency.

HUMA 100 Theatre Appreciation
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Developing understanding, appreciation and critical perceptions of the theatrical event. The course will approach theatre as an art form, an entertainment medium and as a vehicle for self-expression. Emphasis will be placed on the history of theatre, acting, directing, playwriting, theatre technology, costume design, scenic design, and lighting design. Active participation in the playwriting, acting, directing and designing processes will be provided. The course will also
require attendance at theatrical events to offer firsthand experience in theatre arts.

**HUMA 117 Introduction to Music Theory** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Emphasizes the practical learning of basic music skills and will cover fundamental music terminology, notation and structure. Sight singing and listening skills will also be developed through examples drawn from a wide variety of musical styles.

**HUMA 118 Music Appreciation TransferIN 3 Credits**
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces the student to music with an emphasis on critical listening. Surveys a variety of genres, composers and their compositions. No previous background in music required.

**HUMA 201 Humanities: Prehistories Through the Renaissance** 3 Credits
Prerequisites: ENGL 111. Introduces the student to a wide variety of unique creations of the individual imagination. The overall purpose of the course is to deepen and broaden the student's enjoyment of the humanistic disciplines at both the level of feeling and the level of understanding from pre-history to the Renaissance.

**HUMA 202 Humanities: Renaissance to Present** 3 Credits
Prerequisites: ENGL 111. Introduces the student to a wide variety of unique creations of the individual imagination. The overall purpose of the course is to deepen and broaden the student's enjoyment of the humanistic disciplines at both the level of feeling and the level of understanding from the Renaissance to the present.

**HUMA 240 United States Travel Study** 3 Credits
Prerequisites: ENGL 111 English Composition and Program Advisor Approval. This course offers the student an opportunity to study and experience the culture of another region of the United States with an emphasis on history, architecture, art, literature, population, geography, political system, and multiculturalism. The course includes pre-trip planning and lectures, itinerary, trip journals, study and research, and post-trip presentations.

**HUMA 101 Introduction to Human Services** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Explores the history of human services, career opportunities, and the role of the human service worker. Focuses on target populations and community agencies designed to meet the needs of various populations.

**HUMA 102 Helping Relationship Techniques** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Provides opportunities to increase effectiveness in helping people. Examines the helping process in terms of skills, helping stages, and issues involved in a helping relationship. Second in a series of three introductory human services courses.

**HUMS 103 Interviewing and Assessment** 3 Credits
Prerequisites: HUMA 101 and HUMA 102 or CRIM 101 and CRIM 103. Introduces and develops basic interviewing skills. Includes assessment strategies and treatment planning. Third in a series of three introductory human services courses.

**HUMS 104 Crisis Intervention** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Provides beginning training for people who anticipate or are presently working with people in crisis situations.

**HUMS 105 Introduction to Correctional Rehabilitation Services** 3 Credits
Prerequisites: HUMA 101 or CRIM 101. Includes a study of crime and how society is affected.

**HUMS 106 Physiology of Aging** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Focuses on the physical changes and common pathologies associated with the aging process. Includes the psychological and social implications of changes for human behavior. Focuses on health promotion and disease prevention.

**HUMS 107 Human Services Topical Seminar** 3 Credits
Prerequisites: Program Advisor Approval. Discusses topics of current interest in human services. Focuses on special interest projects for students in human services. Utilizes field trips, guest speakers, audio-visual activities and seminars.

**HUMS 108 Psychology of Aging** 3 Credits
Prerequisites: PSYC 101. Covers the major behavioral changes in adulthood and aging. Students explore their own feelings about aging as well as the attitudes of society.

**HUMS 109 Understanding Diversity** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introductory course that encourages cultural awareness and appreciation of diversity. Focuses on cultural variations in attitudes, values, language, gestures, and customs. Includes information about major racial and ethnic groups in the United States.

**HUMS 110 Women's Issues** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Major issues and social problems related to women through an interdisciplinary analysis of social institutions and movements for social change as they affect women. Focus is on 21st century trends in institutions such as the family, law, medicine, education and other social interaction.

**HUMS 112 Recreation for Special Populations** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Studies the nature and etiology of impairments including developmental disabilities, mental illness, physical disabilities, and geriatrics and their potential impact upon an individual's ability to participate in recreational activities. Explores techniques needed to conduct a recreation program that allows successful participation by an individual with a disability.

**HUMS 113 Problems of Substance Abuse in Society** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introductory course that provides basic information about the problems of alcohol and other drug abuse. Explores symptoms and effects of abuse and dependence on individuals, families, and society. Class can be used toward ICAADA certification.

**HUMS 114 Social Services in Long-Term Care** 3 Credits
Prerequisites: None. Provides practical and useful information about aging and institutionalization. Focuses on the role of social services within the long-term care facility. Indiana State Department of Health State Certification requires 48 hours of attendance.

**HUMS 116 Introduction to Disabilities** 3 Credits
Prerequisites: None. Provides background knowledge of the field of mental retardation/developmental disabilities and issues pertaining to the field.

**HUMS 117 Foundations of Direct Support Professionals** 2 Credits
Prerequisites: None. A broad overview of the major concepts associated with providing support to individuals with disabilities in the community. The curriculum meets state and federal guidelines for direct support staff training. Students successfully completing the course will receive a state-sanctioned certificate.

**HUMS 120 Health and Aging** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Presents an overview of the physical changes and common pathologies associated with the aging process. Focuses on the psychological and social implications of such changes for human behavior. Throughout the course there is a focus on health promotion and disease prevention during the later years.

**HUMS 122 Youth and Family Treatment** 3 Credits
Prerequisites: Demonstrated competency through appropriate
assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Designed to allow the student exposure to applications of theories and practical solutions to the challenges facing residential childcare workers. Introduction of the impact of cultural differences within the residential setting. Introduction to the job performance expectations of residential childcare workers, including working with placing agencies and families of the residents in the facility.

HUMS 123 Health and Wellness/Disabilities 3 Credits
Prerequisites: None. Introduces the health and medical aspects of assisting people with disabilities. Upon completion, students should be able to identify and implement strategies to promote wellness and manage health conditions.

HUMS 124 Activity Director Basic 6 Credits
Prerequisites: None. Explores the philosophy and investigates the development of therapeutic activity programs for older persons. Focuses on activities that will meet the individual's physical, social, and emotional needs.

HUMS 126 Community Integration 3 Credits
Prerequisites: None. Introduces students to the knowledge, skills and attitudes necessary for a direct support professional to successfully support persons with developmental disabilities in inclusive community settings.

HUMS 127 Positive Personal Support 3 Credits
Prerequisites: HUMS 116. Designed for Direct Service Provide to help those with disabilities achieve independent living behaviors.

HUMS 128 Disability Support Teams 3 Credits
Prerequisites: HUMS 116 and HUMS 117. Introduces the student to the essential characteristics of an effective team as well as the strategies they can use to be an active member of the team.

HUMS 130 Social Aspects of Aging 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Covers major theories and patterns of aging in American society. Covers social institutions and cultural factors that affect aging process.

HUMS 135 Love, Romance and Relationships 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Examines the key elements of healthy relationships. Explores the main problems that damage relationships. Presents research findings on successful and unsuccessful relationships. Examines how couples can improve intimacy, romance, and emotional connection. Explores the impact of one's emotional and relationship history on current and future romantic relationships. Presents practical, scientific-based skills for improving relationships.

HUMS 140 Loss and Grief 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introductory course provides practical and useful information for people who have experienced loss. Students have opportunity to evaluate their own experiences and attitudes toward loss and grief.

HUMS 180 Ethics in Helping Professions 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introductory level course provides an overview of legal and ethical aspects in the field of workers in social service settings. Includes topics such as personal schema and how it influences working with others, confidentiality, and laws regarding reporting of neglect and abuse.

HUMS 200 Substance Abuse Internship 4 Credits
Prerequisites: HUMS 113, HUMS 208, HUMS 209, and HUMS 210. Fieldwork experiences in approved substance abuse services agency. Students will complete 160 hours under the supervision of an agency professional and a college faculty member. The classroom component will include small group discussion and analysis of the internship experience.

HUMS 201 Internship I 4 Credits
Prerequisites: HUMS 101, HUMS 102, and HUMS 103. The first of two fieldwork experiences in approved human service agencies. Students will complete 160 hours under the supervision of an agency professional and a college faculty member. The classroom component will include small group discussion and analysis of the internship experience.

HUMS 202 Internship II 4 Credits
Prerequisites: HUMS 201, HUMS 205 and HUMS 206. The second of two fieldwork experiences in approved human service agencies. Students will complete 160 hours under the supervision of an agency professional and a college faculty member. The classroom component will include small group discussion and analysis of the internship experience.

HUMS 205 Behavior Modification/Choice Theory 3 Credits
Prerequisites: HUMS 103 or CRIM 105. Provides an overview of the techniques and applications of behavior modification theory. Examines formal and informal techniques of behavior change. Includes group functioning and leadership strategies for effectively working with a co-leader, and practical applications of evaluating the group processes.
HUMS 240 Rehabilitation Process: Probation and Parole 3 Credits
Prerequisites: HUMS 105. Provides an understanding of probation and parole as an integral part of the criminal justice system with special emphasis on current and future trends in this area. Explores the role of community corrections and its impact on the role of probation and parole in our society in view of the increase in the number of offenders.

HUMS 270 Multicultural Practice 3 Credits
Prerequisites: HUMS 101, HUMS 102, and HUMS 103. This course examines, from a theoretical and experiential social work perspective, the personal behaviors and institutional factors that have led to oppression of ethnic minorities, persons of color or other oppressed populations and those practices that serve to maintain inter-group tensions. Attention is given to discriminatory practices as related to gender, age, religion, disability, sexual orientation, culture, etc. It will explore the strategies that the various groups have employed to deal with discrimination. Implications to the individual, society and the profession are explored.

HUMS 279 Human Services Social Work Bridge Course 1 Credit
Prerequisites: HUMS 201. Orientation to the profession of social work. Course addresses origins, ethics, accreditation, theoretical foundations, fields of social work, populations served and diversity. Course builds on material already covered in HMS 101: Introduction to Human Services. Course will meet both at Ivy Tech and the related campus. Course will provide an orientation to the School of Social Work.

HVC 204 Commercial Refrigeration 3 Credits
Prerequisites: HVAC 221. Examines air conditioning and refrigeration systems for commercial use, including medium and low temperature applications. Includes specialized commercial refrigeration and A/C accessories, metering devices, setting pressure controls for direct temperature control, fan cycling and pump down, commercial ice production, methods of low ambient control, and advanced control arrangements.

HVC 205 Heat Pump Systems 3 Credits
Prerequisites: HVAC 103. Familiarizes students with the refrigeration cycle as it applies to the heat pump system and the different types of heat pump systems. Covers procedures used to diagnose electrical, control, mechanical and refrigeration problems common to heat pumps. Includes sizing of heat pumps, specialized heat pump refrigeration components and electrical controls, the air-to-air heat pump defrost cycle, schematic and pictorial diagrams.

HVC 206 Advanced Cooling Service 3 Credits
Prerequisites: HVAC 211. Studies methods of troubleshooting electrical and mechanical components of air conditioning and refrigeration systems.

HVC 207 HVAC Codes 3 Credits
Prerequisites: None. Study of state and local codes covering installation, repair, alteration, relocation, replacement and erection of heating, ventilation, cooling and refrigeration systems. Includes job-related costs of material and equipment, labor, warranty, taxes, permits and subcontractors. Students will examine service and maintenance contracts.

HVC 208 Heating Service 3 Credits
Prerequisites: HVAC 101. Covers procedures used to analyze mechanical and electrical problems encountered when servicing heating systems. Covers electrical schematics and connection diagrams, combustion testing, venting and combustion air requirements, sequence of operations, heating controls, troubleshooting techniques, installation practices, basic codes applying to furnace codes, and service procedures.

HVC 209 Psychrometrics/Air Distribution 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Studies the properties of air during the operational variations of temperature and humidity. Discusses the atmospheric conditions and the impact of those conditions on the heating-cooling and ventilation processes and the design of systems for residential and commercial structures. Includes the sizing and configuration of air delivery duct systems and system design methods.
HVAC 211 Refrigeration II 3 Credits
Prerequisites: HVAC 103 and INTD 113. Continues the study of air conditioning and refrigeration with further study of compressors, metering devices, system charging, refrigerant recovery, equipment installation and an introduction to troubleshooting procedures [electrical, mechanical and refrigeration]. Includes clean-up procedures following compressor burnout and analysis of how a single problem affects the rest of the system. Introduces electrical control systems and electrical motor basics as they apply to air conditioning and refrigeration including motor types, starting components, and motor troubleshooting basics.

HVAC 212 Advanced HVAC Controls 3 Credits
Prerequisites: INTD 113. Covers control systems beyond ordinary residential and single zone commercial applications. Includes solid state controls, 0-10 volt DC and 4-20 milliamp control signals, zoning controls, modulating controls, low ambient controls, heat recovery and energy management controls, economizer controls, 3-phase motor protection modules, variable frequency drives [VFDs], remote sensing electronic thermostats, electronically commutated DC motor control, Direct Digital Control [DDC] systems, multiple stage heating/cooling controls, PLC control of HVAC/R equipment and pneumatic controls.

HVAC 213 Sales and Service Management 3 Credits
Prerequisites: None. Encompasses the use of blueprints, specifications, application data sheets, bid forms and contracts in estimating materials and labor in the HVAC business. Includes advertising, direct labor, indirect labor, overhead, warranty costs, taxes, permits, subcontracts, margins, mark-ups and profit. Provides students with the opportunity to estimate service contracts and study service organization, service procedures, record keeping, parts inventory control, and liability insurance.

HVAC 214 Applied Design 3 Credits
Prerequisites: None. Provides students with the opportunity to design and lay out complete HVAC systems.

HVAC 220 Distribution Systems 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Covers methods used in calculating building heat loss and gain plus how to use this data in sizing equipment and duct systems for residential and light commercial applications. Includes discussion of methods to reduce building heating/cooling loads, air flow principles, air delivery system design methods, and introduces using a psychrometric chart to solve air mix problems.

HVAC 271 HVAC Service Projects 3 Credits
Prerequisite: Advisor Approval. This course will focus on two projects (or more depending on the time involved) directly related to the HVAC trades. Students will work around other tradesmen of the field. We will incorporate into the class the principles of Service Learning and Civic Responsibility.

HVAC 272 EPA Refrigerant Certification Course 1 Credit
Prerequisite: None. This course will prepare a student to take an EPA approved refrigerant certification course.

IMTC 106 Millwright I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Introduces the proper use of hand and power tools and measuring instruments in carpentry, blacksmithing, rigging and equipment, machinist and general shop. Includes structural steel and fabricating terms.

IMTC 107 Preventative Maintenance 3 Credits
Prerequisites: None. Introduces the major purpose of preventative maintenance: to save time and to cut costs. The course will study goals such as reducing losses, improving product quality, boosting production efficiency, and increasing profits. Includes an introduction to sound planning, effective scheduling, competent inspection, control and actions at the worksite, and follow-up reporting. Lab projects will be designed to organize materials, tool control, transportation of equipment, sizing up labor requirements.

IMTC 108 Measuring and Calibration 3 Credits
Prerequisites: INTD 113. Provides instruction in the purpose, function and application of oscilloscopes and related instruments.

IMTC 110 Coupling and Alignment 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Introduces the concepts of correct alignment of industrial process machinery. Provides instruction in troubleshooting and repair of coupled machines.

IMTC 111 Rigging 3 Credits
Prerequisites: None. Introduces the proper techniques of moving industrial machinery and equipment. Emphasis is placed on proper installation, inspection, safety requirements, and load calculations.

IMTC 112 Shear Metal Layout and Design 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 040 or MATH 015. Examines the procedures used to layout sheet metal components. Presents the proper use of hand and machine tools to fabricate sheet metal projects.

IMTC 121 Industrial Safety 3 Credits
Prerequisites: None. Introduces occupational safety and health standards and codes with emphasis on applications of codes to typical work situations and MSDS requirements. Includes emergency first aid, safety protection, eye protection and chemicals handling. Covers employer and employee rights as well as violations, citations, penalties, variances, appeals and record keeping.

IMTC 122 Electrical Wiring Fund/NEC Codes 3 Credits
Prerequisites: INTD 113. Introduces the student to the National Electrical Code and its application in designing and installing electrical circuits, selecting wiring materials and devices, and choosing wiring methods. Includes electrical safety, terminology, interpretation of electrical symbols used in construction blueprints, branch circuit layout, over current protection, conductor sizing, grounding, GFCI & AFCI protection, tool usage, and material/device selection.

IMTC 271 Industrial Electrical Troubleshooting 3 Credits
Prerequisite: INTD 113. This course presents methods and techniques for troubleshooting appliances, motors, motor controls, relay wiring, residential wiring, commercial wiring, and industrial wiring.

INTD 101 Shop Mathematics 3 Credits
Prerequisites: None. Provides a review of basic operations with numbers, fractions and decimals as a basic foundation. It presents the range of practical mathematics that every machinist is expected to use in the classroom and later in the shop in the creation and maintenance of tools, fixtures and industrial devices. The last group of practical topics applies math to special calculations as: taper angles, gearing ratios, gear systems, and cutting speeds and feeds. Included are applications that three dimensional in nature such as angled holes and surfaces that are utilized concepts found in solid geometry and trigonometry.

INTD 102 Introduction to Print Reading 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 040 or MATH 015. Provides an introduction to reading and interpreting machine shop symbols, welding blueprints and working drawings used in trades and crafts. Focuses on dimension, shape, fabrication and assembly. Applies basic mathematics to the solution of print and performance problems.

INTD 103 Motors and Motor Controls 3 Credits
Prerequisite: INTD 113. A general understanding of common types of electric motors, extending from the small shaded pole fan motors to the large three-phase motors. Topics covered will include motor theory, magnetism and how it affects motor rotation, motor starting components and protective devices for motor circuits. Heat dissipation from a motor, motor slippage, how they are wired to obtain different speeds, and how capacitors affect a motor circuit will be included.

INTD 104 Fluid Power Basics 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 040 or MATH 015. Introduces fluid power principles and components. Teaches basic
circuit design through the use of symbols and schematic diagrams to build a foundation for career work in fluid power technology.

**INDT 105 Industrial Solid State Fundamentals** 3 Credits
Prerequisites: INDT 103 and INDT 113. Studies the fundamentals of solid-state active devices that are used in automated systems. Introduces the student to the theory of basic solid-state devices such as diodes, transistors, and SCRs and applications such as amplifiers, op amps, and switching power supplies. Prepares students to diagnose, repair, verify, and install electronic circuits and systems.

**INDT 106 Introduction to the Workplace and Safety** 3 Credits
Prerequisites: None. Introduces basic safety instruction including OSHA requirements and other concerns (MSDS, confined space, lock out/tag out, zero energy state, hazardous materials, storage of flammable materials, storage of fuel gas and high pressure gas cylinders, portable powered tool safety, hand tool safety, record keeping, training, employer enforcement of safety regulations, right to know, etc.). Includes an introduction to measuring instruments, hand tools, portable powered tools, and procedures that are pertinent to the mix of specialties on the campus. Lab projects will be designed to reinforce safety procedures and develop competency levels in using the measuring instruments, hand tools and portable powered tools introduced in the course.

**INDT 107 Heating and Air Conditioning Basics** 3 Credits
Prerequisites: None. Presents fundamentals of heating and compression systems used in mechanical refrigeration. Includes combustion process, heat flow, temperature measurement, gas laws, heating and refrigeration cycles and components used in systems.

**INDT 108 Metrology** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Instructs a student in mechanical precision measurement techniques and applications. Provides instruction and laboratory experiences in surface plate inspections, optical comparators, hardness testing, and coordinate measuring machines (CMM). Discusses calibration and measurement system analysis.

**INDT 113 Basic Electricity** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. The study of electrical laws and principles pertaining to DC and AC circuits is the focus of the course. Includes current, voltage, resistance, power, inductance, capacitance, and transformers. Stresses use of standard electrical tests, electrical equipment, and troubleshooting procedures. Safety procedures and practices are emphasized.

**INDT 114 Introductory Welding** 3 Credits
Prerequisites: None. Provides basic skills and fundamental knowledge in oxy-fuel welding, cutting and brazing, shielded metal arc welding, gas metal arc welding and gas tungsten arc welding. This course is designed for beginning welders, auto service and body technicians, and individuals in the HVAC industry. Emphasizes safe practices in oxy-fuel and arc welding processes.

**INDT 120 Metallurgy Fundamentals** 3 Credits
Prerequisites: None. Studies the fundamentals of thermodynamics and reactions occurring in metals subjected to various kinds of heat treatment. Includes classification and properties of metals, chemical and physical metallurgy, theory of alloys, heat treatment principles as applied to ferrous and non-ferrous materials, test to determine uses, heat treatment for steels, special steels, and cast iron, powder metallurgy, and use of gas and electric furnaces and their controls.

**INDT 131 Introduction to Process Technology** 3 Credits
Prerequisites: None. Introduction to power plant systems including boiler, turbine, generator, condenser, pumps, and auxiliary equipment. Emphasizes the use of schematics and diagrams in discussing plant systems. Includes plant safety training.

**INDT 132 Process Technology I (Equipment)** 3 Credits
Prerequisites: INDT 131. Provides an overview of the equipment and tools used in the process industry; including piping, tubing, hoses and fittings, valves, pumps, compressors, turbines, motors and engines, power transmission and lubrication, heat exchangers, cooling towers, furnaces and boilers, filters and dryers, vessels, and process diagrams. Students will be introduced to many process-related equipment concepts, such as purpose, components, operation, and the process technician's role for operating and troubleshooting the equipment.

**INDT 133 Process Technology II (Systems)** 3 Credits
Prerequisites: INDT 131. Provides an overview of the equipment and tools used in the process industry; including piping, tubing, hoses and fittings, valves, pumps, compressors, turbines, motors and engines, filters and dryers, vessels, and process diagrams. Students will be introduced to many process-related equipment concepts, such as purpose, components, operation, and the process technician's role for operating and troubleshooting the equipment.

**INDT 134 Process Technology III (Operations)** 3 Credits
Prerequisites: INDT 133. Provides an overview of the field of operations within the process industry. Students will use existing knowledge of equipment, system, and instrumentation to understand the operation of an entire unit. Students study concepts related to commissioning, normal startup, normal operations, normal shutdown, turnaround, and abnormal situations as well as the process technician's role in performing the tasks associated with these concepts within an operating unit.

**INDT 201 Fluid Power Systems (Hydraulics/Pneumatics)** 3 Credits
Prerequisites: INDT 104. Introduces the student to more complex fluid power circuits. Requires students to design, analyze and troubleshoot complex circuits using schematic diagrams. Studies detailed construction of typical industrial fluid power components. Teaches students to disassemble and evaluate fluid power components in the lab.

**INDT 203 Machine Maintenance/Installation** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Examines the procedures for the removal, repair and installation of machine components. The methods of installation, lubrication practices, and maintenance procedures for industrial machinery are analyzed. Also presented are the techniques involved in the calibration and repair of mechanical devices and the practice in computations pertaining to industrial machinery.

**INDT 204 Electrical Circuits** 3 Credits
Prerequisites: INDT 113. This course is designed to provide an understanding of circuits using alternating current and the motor operation. Provides fundamentals of single- and three-phase alternating current. Analysis of series and parallel circuits, containing resistance, inductance, and capacitance will be covered. Transformer applications both single phase and three-phase along with power distribution will be covered. This course will give each student a general understanding of common types of electric motors, extending from the small shaded pole fan motors to the large three-phase motors. Direct current motors will also be covered. The student will receive an education in motor theory, magnetism and how it affects motor rotation, and how capacitors affect a motor circuit will be included.

**INDT 205 Programmable Controllers I** 3 Credits
Prerequisites: INDT 113, ADMF 113, or EECT 101. Introduces the basic theory, operation and programming of programmable logic controllers. Demonstrates programming examples, set-up examples and troubleshooting, as well as PLC timing, counting, arithmetic and logic and sequencers.

**INDT 206 Programmable Controllers II** 3 Credits
Prerequisites: INDT 205. Serves as a further introduction to the field of industrial controls. Students will learn the principles of control systems and how they are applied to a production system to achieve automation. Systems included in the courses are stepper motors, programmable logic controllers, microprocessors, computers and feedback systems. Emphasis is placed on programmable logic controllers and the local area network.

**INDT 207 Process Control and Automation I** 3 Credits
Prerequisites: CMG 102, INDT 102, INDT 103, INDT 203, INDT 206, INDT 207 and MATH 111 or demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 035 or
INDT 206 Process Control and Automation II 3 Credits
Prerequisites: IND 205. Continues to explore the Process Control and Automation system combining the new elements with previous classes into the culmination of a more complex manufacturing process. The student will study hardware elements of the automation system and intermediate programming fundamentals for individual systems.

INDT 209 Process Control and Automation III 3 Credits
Prerequisites: IND 208. Finalizes the Process Control and Automation system by employing new hardware and software elements to complete the process. The student will build, operate and troubleshoot the process system to stimulate manufacturing procedures.

INDT 210 Pumps 3 Credits
Prerequisites: IND 104. Covers the construction and operation of centrifugal, reciprocating, metering, special, and rotary pumps and their components. Includes procedures of troubleshooting, installation, and maintenance.

INDT 211 Industrial Instrumentation 3 Credits
Prerequisites: IND 113 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 105 or MATH 105. Provides instruction in the purpose, function, and application of process control instruments relative to manufacturing and industrial technology.

INDT 212 Programmable Controllers III 3 Credits
Prerequisites: IND 206. Serves as an introduction to advance topics in the field of programmable controllers. Use of the latest technology and software will be stressed. Control Logix, Operator Interfaces, and Networking will be some of the areas covered. In addition, the student will be exposed to special high-level functions and I/O modules and学会 such as PID loops, servo control, and use of multiple processors.

INDT 213 Pipe Fitting Basics 3 Credits
Prerequisites: IND 102 or IND 106. Acquaints the maintenance technician with a basic foundation and pipe-fitting skills necessary to make repairs or layout new pipe. Includes determination of the type and quantity of material needed to complete a task and joining those materials in the proper manner with a minimum of supervision.

INDT 214 Advanced Industrial Mechanics I 3 Credits
Prerequisites: IND 203. Examines the operation and design of mechanical systems including belt drives, chain drives, gears, and bearings. Includes the proper use of portable tools and the study of different metals.

INDT 215 Advanced Industrial Mechanics II 3 Credits
Prerequisites: IND 203 and IND 103. Teaches advanced mechanical maintenance skills which specifically include vibration analysis, laser shaft alignment, lubrication oil analysis, pumps, seals, gaskets, and couplings. Half of the semester is also devoted to teaching the basics of heating and air conditioning.

INDT 216 Industrial Automation 3 Credits
Prerequisites: IVA 105, IND 207 and TECH 104. Covers the field of industrial automation. Introduces the principles of control systems both analog and digital based. Covers instrumentation and sensors; position, speed, thermal, pressure, flow, and level. Develops an understanding of analog and digital signal conditioning as applied to automated systems. Covers the principles of process controllers both analog and digital. Understand control loop characteristics and tuning.

INDT 217 Advanced Motor Drives 3 Credits
Prerequisites: IND 103 and HVAC 105. Covers the field of industrial motor drives, dc, ac, servo and stepper motors. Introduces students to variable voltage drives and variable frequency drives. Topics covered will include installation, setup, maintenance, and troubleshooting of drive systems.

INDT 218 Power Plant Mechanics 3 Credits
Prerequisites: IND 207 and MATH 111 or demonstrated competency through appropriate assessment or earning a "C" or better in MATH 035 or MATH 043. Presents the basic elements in the power plant, the function, their mode of operation, and the mechanics, with an emphasis on the construction and repair of power plant mechanics. The student selects, troubleshoots, repairs power plant mechanics.

INDT 231 Safety, Health, and Environment I 3 Credits
Prerequisite: IND 114. Provides an introduction to the field of safety, health, and environmental concerns within the process industry. Within this course, you will be introduced to various topics of health hazards, safety and environmental systems and equipment, and the regulations under which processing plants are governed.

INDT 232 Principles of Quality 3 Credits
Prerequisite: IND 131. Provides an introduction to the field of quality within the product industry. Students will be introduced to many process industry-related quality concepts including operating consistency, continuous improvement, plant economics, team skills, and statistical process control (SPC).

INDT 233 Process Instrumentation I 3 Credits
Prerequisite: IND 131. Provides introduction to the field of instrumentation and covers process variables and the instruments used to sense, measure, transmit, and control those variables. Course also introduces control loops and the elements that are found in different types of loops, such as controllers, regulators, and final control elements. Course concludes with study of instrumentation drawings and diagrams and a unit on troubleshooting instrumentation.

INDT 234 Process Troubleshooting 3 Credits
Prerequisite: IND 132. Course involves instruction in different types of process technology troubleshooting techniques, procedures, and methods used to solve process problems. Topics: application of data collections and analysis, cause-effect relationships, and reasoning.

INDT 260 Problem Solving and Teamwork 3 Credits
Prerequisites: ENGL 111 and MATH 118 or MATH 111 or demonstrated competency through appropriate assessment or earning a "C" or better in MATH 035 or MATH 043 and Program Advisor Approval. Covers critical thinking skills, collection and analyzing data, and quality control overview, teamwork, problem solving and decision making techniques as they apply to a technological environment. As a capstone course for the Manufacturing and Industrial Technology program, course is designed to reinforce and apply the knowledge and skills learned in previous communication, mathematics and technical courses and foster team and individual skills through experiments, case studies, problem solving projects, and a writing project.

INDT 272 Control Logix 3 Credits
Prerequisite: None. This course serves as a further introduction to the field of industrial controls. Students will learn the principles of control systems and how they are applied to a production system to achieve automation. Systems included in the courses are stepper motors, programmable logic controllers, microprocessors, computers and feedback systems. Emphasis is placed on programmable logic controllers and the local area network.

INDT 273 Electrical Troubleshooting 3 Credits
Prerequisite: None. Presents methods and techniques for troubleshooting appliances, motors, motor controls, relay wiring, commercial wiring and industrial wiring systems.

INDT 274 Flux Core Arc Welding 3 Credits
Prerequisite: IND 114 or background in GMAW or Instructors Approval. Provides basic skills and fundamental knowledge in Flux Core Arc Welding (FCAW). Gas shielded wire as well as Innershield wires are utilized in the course. Safe lab practices include oxygen cutting, plasma arc cutting (P.A.C.), and storage and handling of high pressure cylinders.

INDT 280 Co-op/Internship 1-3 Credits
Prerequisite: Program Advisor Approval. Gives students the opportunity to work at a job site that is specifically related to their career objectives. Provides on-the-job experience while earning credit toward an associate degree.

INSC 101 Introduction to Insurance 3 Credits
Prerequisite: None. Presents an introduction to the profession of insurance. The course includes an overview of the insurance industry, types of coverage that exist, insurance processes and expected outcomes.
INSE 210 Secure Coding Theory and Application 3 Credits
Prerequisite: INSE 210. Prerequisites: INSE 210. Presents the steps for writing, testing, and deploying good, robust, and security-enhanced code. Subjects covered include: Abstraction, cryptology, secure code lifecycle, buffer overflows, race conditions, and format string vulnerabilities. Instructors: Students and others.

INSE 221 Cryptography 3 Credits
Prerequisite: INSE 211. Students will learn about cryptography as an indispensable resource for implementing strong security in real-world applications. Students will learn how conventional crypto schemes, protocols, and systems are vulnerable. The course will cover the foundations of cryptography using simple mathematical models: probability, information theory, computational complexity, number theory, and algebraic techniques. The student will assess the strength of several standards and use formal methods to prove security efficiency. Students will discuss zero-knowledge protocols: their characteristics, development, arguments, and proofs, symmetrical and asymmetrical ciphers, digital signatures, Kerberos, code signing, creation/deployment of strong keys and passwords, Virtual Private Networks, SET, and SSL.

INSE 250 Ethical Hacking 3 Credits
Prerequisite: INSE 210. The student will continue the knowledge learned in the Certified Ethical Hacker track started in INSE 210. The student will learn threats and defense mechanisms, web applications and data servers, Linux, Macintosh, and Mobile systems, and Secure Network Infrastructures. These topics will help the student to sit for the CEH certification exam presented by EC-Council.

INTD 101 Design Theory 3 Credits
Prerequisite: None. Introduces theory and color dynamics as applied to compositional design. Includes exploration and application of three-dimensional concepts, human factors, and the psychology and social influences of space.

INTD 102 Drafting and Construction 3 Credits
Prerequisite: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 045. Provides an understanding of construction techniques, residential construction drawings, building materials and blueprint reading. Includes building codes and the preparation of plans, elevations, sections, and details as they relate to construction drawings.

INTD 103 Introduction to Interior Design 3 Credits
Prerequisite: None. An introductory course which provides students with an overview of the field of interior design. Exercises include small scale space analysis and functional planning based on user needs. Application of the principles of design, furniture arrangement and selection, interior finish considerations and presentation techniques.

INTD 104 Textiles for Interiors 3 Credits
Prerequisite: None. An intensive study of textiles from a fiber sources identification and classification to finish and sustainable qualities. Also introduces the study of interior textile fabrics including window treatments, upholstery, carpet and wall coverings.

INTD 105 Design Presentations 3 Credits
Prerequisite: INTD 102. Presents the elements of two- and three-dimensional representational drawings and design concepts. Studies include basic drawing, drafting and perspective techniques, color rendering, material board preparation and client presentation.

INTD 108 Interior Design II 3 Credits
Prerequisites: INTD 102 and INTD 103 and INTD 105. Presents concepts: development, programming, and space planning of the interior environment. Exercises reinforce creativity and problem solving skills. Emphasizes the relationship between individuals and their surroundings, including studies in human scale, proxemics and design considerations for special populations.

INTD 110 History of Interiors and Furniture 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Survey of the development of the interrelationship of architecture, interiors, furniture, and decorative arts from antiquity through the ages.

INTD 115 Basic CAD for Interior Designers 3 Credits
Prerequisite: INTD 102 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 070 or MATH 015 or MATH 022. Introduces fundamentals of Computer-Aided Drafting (CAD) for environmental designers. Includes overview of CAD systems, use of software, and printer/plotter applications.

INTD 200 Lighting and Building Systems 3 Credits
Prerequisites: INTD 102 and INTD 216. Presents the integration of commercial and institutional interior design and architectural detailing. Includes the environmental impact of mechanical and electrical systems, as well as acoustics and codes. Special emphasis will be placed on lighting technology and application.

INTD 201 Interior Materials 3 Credits
Prerequisites: INTD 102 and INTD 103. Examines the physical properties and characteristics of various interior furnishings and decorative materials.
finishes, and architectural detailing including floor and wall treatments. Addresses environmental issues and problems in specifying, estimating, and installing these materials.

INTD 202 Contract Design 3 Credits
Prerequisites: INTD 108 and INTD 115 or INTD 216. Studies include commercial technological and base building requirements, sustainability and environmental impact, barrier-free, building and life safety codes, analysis of existing conditions, client interview, and square footage and space planning standards. Emphasis is on task analysis and workstation design, systems and equipment manufacturers and finish selections within the office.

INTD 203 Professional Practice 3 Credits
Prerequisites: INTD 103 or GRDN 114. Introduction to business principles and practices as they relate to the environmental design profession. Includes business formation and management, professional ethics and organizations, certification and licensing, design liability and project management. Special topics including consumer behavior, sales techniques and fee structuring will also be addressed.

INTD 204 Interior Design III 3 Credits
Prerequisites: INTD 108 and INTD 115. Students will research and develop creative project solutions for commercial interiors in visual merchandising, hospitality, adaptive re-use and special population projects. Students will define, research, and develop a program for an advanced design problem including concept development, space planning, all necessary working drawings and specifications and appropriate presentation materials.

INTD 209 Portfolio Preparation/Internship 3 Credits
Prerequisites: Program Advisor Approval. Efforts are directed toward obtaining a career in environmental design. Includes a comprehensive program assessment exam, the development of a quality portfolio and resume, and seminar field experience.

INTD 211 Kitchen and Bath Design 3 Credits
Prerequisites: INTD 102 and INTD 103. Involves the requirements and space planning for kitchens and baths, utilizing both standard and custom cabinetry and fixtures. Topics also include casework for media and conference centers.

INTD 212 Historic Preservation 3 Credits
Prerequisites: INTD 102 and INTD 110. Introduces the process of establishing historic properties. Preservation, restoration and adaptive re-use will be differentiated as applied to both public and private properties. Includes appropriate exterior and interior color and finish selections, and architectural detailing.

INTD 215 Advanced CAD and Digital Rendering 3 Credits
Prerequisite: INTD 115 and INTD 216. Reviews the fundamentals of Computer-Aided Drafting (CAD) for environmental designers.

Includes overview of advanced architectural CAD systems and use of 3-D and rendering software.

INTD 217 Visual Merchandising 3 Credits
Prerequisites: INTD 102 and INTD 115. Presents students with a survey of the many elements of visual merchandising and display currently used in retail design and decorative accessorization to attract customers. Students are introduced to the principles of retail space planning, fixture arrangement and the display equipment required in visual merchandising including fixtures, mannequins, signage, lighting and props. Includes research in marketing, color, psych, lighting. Field trips and hands-on projects are an integral part of the course.

INTD 221 Kitchen and Bath Systems and Project Management 3 Credits
Prerequisites: INTD 102 and INTD 103. Students will develop a knowledge of lighting systems, mechanical systems, HVAC and project and construction management. Students will also demonstrate a knowledge of ethical business practices, including the NKBA Standards of Conduct, Common Business contracts and the NKBA business tools and forms.

INTD 224 Travel Study 3 Credits
Prerequisites: Program Advisor Approval. Offers the student an opportunity to study the culture and history of another region, with an emphasis on art, architecture, interior and garden design. Includes pre-trip meetings and lectures, trip journals and summary papers.

INTD 233 Sustainable Design 3 Credits
Prerequisite: INTD 102. Introduces the fundamental principles in the ecological planning and development of the natural and built home and work environment. Presents the concepts of human impact on the environment through studies involving site selection and analysis, soil and climate conditions, efficient space planning and building design, renewable and environmentally responsible construction methods, material selections and sustainable practices.

INTD 241 Faux Finishing: Basic Glazing Techniques 1 Credit
Prerequisites: None. Presents the basics in glazing techniques and wall finishes including traditional and contemporary single and multi-colored wall glazing. Pigment selection, surface preparation, and handling of materials will be discussed and demonstrated.

INTD 242 Faux Finishing: Italian Plasters 1 Credit
Prerequisites: None. Introduces the traditional Italian plaster finishes. Learn how to replicate and incorporate the beautiful textures of the Old World into the modern setting. The history of lime-based plasters and the interior decorative arts will be discussed.

INTD 243 Faux Finishing: Patterns and Stenciling 1 Credit
Prerequisites: None. Introduces the use of stencils and hand-painted patterns that will repeat and match perfectly. Learn techniques to cut patterns and to paint them on the wall or furniture pieces.

INTD 244 Faux Finishing: Advanced Glazing Techniques 1 Credit
Prerequisites: INTD 241. Presents the latest trends in advanced glazing techniques and wall finishes. Students will explore in-depth an advanced level of faux and decorative finishing while building proficiency in both techniques and product knowledge.

INTD 245 Faux Finishing: Painted Furniture and Decorative Accessories 1 Credit
Prerequisites: INTD 241. Covers the techniques of creating unique, one-of-a-kind painted furniture and decorative accessories pieces. Students will learn how to create a variety of professional finishes including multi-layered painted and wood-toned finishes that are suitable over raw wood, pre-existing finishes and painted base coats.

INTD 246 Faux Finishing: Floors and Floor Coverings 1 Credit
Prerequisites: ARTS 120 or INTD 105. Applies basic drawing and perspective skills to create frescoes, murals and trompe l'oeil on the wall palette.

INTD 247 Faux Finishing: Frescoes and Murals 1 Credit
Prerequisites: ARTS 120 or INTD 105. Applies basic drawing and perspective skills to create frescoes, murals and trompe l'oeil on the wall palette.

INTD 280 Co-op/Internship 1-6 Credits
Prerequisites: Program Chair Advisor Approval. Students work at job sites that are specifically related to career objectives. Provides on-the-job experience while earning course credit.

IVYT 070 College and Life Success 3 Credits
Prerequisites: None. Enhances success in college by assisting students in obtaining skills necessary to reach their educational, career, and life objectives. Topics include time management, memory techniques, textbook usage, test-taking, problem solving and decision making, group interaction, communication skills, and resource and technology utilization.

IVYT 071 Study Skills Survey 1 Credit
Prerequisites: None. Enhances success in college by assisting students in obtaining skills necessary to reach their educational, career, and life objectives. Topics include memory, reading, note-taking, test-taking techniques, strategies for scheduling time, and dealing with test anxiety.
IVYT 072 Research Strategies
Prerequisites: None. Enhances success in college by assisting students in obtaining skills necessary to reach their educational, career, and life objectives, specifically in the area of information literacy. Students will learn how to use an email account and a variety of online resource information databases. The course also addresses basic issues concerning informational integrity.

IVYT 073 Styles of Learning
Prerequisites: None. Enhances success in college by assisting students in obtaining skills necessary to reach their educational, career, and life objectives. Students will learn a holistic, integrated, principle-centered approach for solving academic challenges. This course represents a step-by-step learning process which provides effective tools that help students adapt to change.

IVYT 101 First Year Seminar
Prerequisites: None. Provides students with an overview of skills and strategies necessary to reach their educational, career, and life objectives. Topics include time management, study skills, learning styles, campus and community resources, critical thinking, utilization of technology, career skills, and diversity in society.

IVYT 102 Information Studies and Research Skills
Prerequisites: None. Introduces students to a variety of information skills: understanding how information and knowledge is produced and organized; creating a strategy for finding information; using and identifying print and electronic resources; locating and evaluating information found; citing and documenting information appropriately; and understanding issues relating to intellectual freedom and copyright laws.

IVYT 103 Health and Wellness
Prerequisites: None. Educates students about the importance of fitness/wellness in their everyday lives. Students will have the opportunity to customize their own behavioral plans for fitness/wellness.

IVYT 104 Critical Thinking
Prerequisites: None. Assists students in developing critical thinking strategies with academic and workplace applications.

IVYT 105 Managing Personal Finances
Prerequisites: None. An overview of how to manage personal finances. The course includes information in the areas of personal finances, loans, credit, and investing.

IVYT 106 Career Exploration
Prerequisites: None. Enhances success in college by assisting students in obtaining the skills necessary to identify their life, educational, and career goals, specifically in the area of academic and professional offerings that support possible career choices.

IVYT 107 Professional Presence
Prerequisites: None. Provides students with the opportunity to develop a professional presence in business and social settings. Topics include professional communication, proper etiquette and job attainment skills.

IVYT 108 Academic Portfolio and Project Development and Management
Prerequisites: None. A study of the basic project and portfolio process and provides students with the opportunity to plan and develop a project or portfolio for academic or professional presentation.

IVYT 109 Online Learning Technologies
Prerequisites: None. Prepares students to succeed in an online learning environment. The course provides an opportunity to demonstrate intellectual, social, and technical skills through the use of online technologies. This course also prepares students for online learning and training opportunities in the workplace.

IVYT 110 Transfer Success
Prerequisites: None. Examines the essential skills and information needed for transfer to a four-year institution. Emphasizes developing an individual transfer plan.

IVYT 120 New Student Seminar
Prerequisites: Minimum entry assessment. Enhances success in college by assisting students in obtaining skills necessary to their educational, career, and life objectives. Students will create and apply critical thinking strategies in areas of time management, media literacy, learning styles, study skills, career planning, money management, and resource utilization.

IVYT 171 Student Leadership Academy
Prerequisites: None. This course provides emerging and existing leaders the opportunity to explore the concept of leadership and to develop and improve their leadership skills. The course integrates readings from the humanities, experiential exercises, films, and contemporary readings on leadership.

IVYT 125 Service Environment for the Youth Professional
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Examines stages of the family life cycle and interpersonal relationships among family members within the context of cultural awareness and appreciation of diversity. Recognizes impact of cultural variations in attitudes, values, language, gestures, and customs upon the family’s ability to function. Includes information about major racial and ethnic groups in the United States.

IVYT 102 Families and Communities
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Examines stages of the family life cycle and interpersonal relationships among family members within the context of cultural awareness and appreciation of diversity. Recognizes impact of cultural variations in attitudes, values, language, gestures, and customs upon the family’s ability to function. Includes information about major racial and ethnic groups in the United States.

IVYT 103 Service Environment for the Youth Professional
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. Examines stages of the family life cycle and interpersonal relationships among family members within the context of cultural awareness and appreciation of diversity. Recognizes impact of cultural variations in attitudes, values, language, gestures, and customs upon the family’s ability to function. Includes information about major racial and ethnic groups in the United States.

IVYT 104 Curriculum for Child and Youth
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. This course examines environments, materials, activities, and strategies which foster the development of children and youth, including those with special needs. The use of observation in meeting the comprehensive needs of children and youth is explored. Techniques which promote positive relationships, community building, effective communication, conflict resolution, and problem solving skills are reviewed. Students will develop, implement, and assess appropriate activities.

IVYT 115 Professionalism
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. This course prepares students to interact with clients and colleagues in a professional manner. Explores issues commonly experienced while working with youth. This course emphasizes ethical considerations in human services and helps prepare students to secure credentialing in the youth worker field.

LAND 101 Landscape Trees
Prerequisites: None. Identification of shade, ornamental, and evergreen trees. Including evaluating species quality, growth habits, site adaptability. Covers 125 species important to landscaping tree care.

LAND 102 Shrubs and Other Plants
Prerequisites: None. The identification of 125 shrubs, vines, ground...
covers, and herbaceous plants important to landscaping including evaluation of growth habits, species quality, and site adaptability.

**LAND 103 Landscape Management I** 3 Credits
Prerequisites: None. Methods in the practice of landscaping, tree care, and turf management are briefly introduced through lectures, slides, videos, and field trips. Weed problems and their control are studied. A large segment of the course is devoted to the study of non-pathogenic problems of landscape plants and turf as well as their pathogenic diseases, and management of these problems.

**LAND 104 Turf Management** 3 Credits
Prerequisites: None. A study of the particular growth characteristics of the grass species used in lawn areas in the Midwest and Great Lakes area. Also covers the competitive influences and how to control these problems and promote good turf.

**LAND 105 Landscape Botany** 3 Credits
Prerequisites: Program Chair Approval. The study of the life of a plant; cell structure; the structure and function of roots, stems, leaves, flowers, and seeds; the assimilation of water and nutrients in the plants growth and the stages of development as well as the place and importance of soils. This class is important to one seeking qualification as a licensed pesticide applicator.

**LAND 106 Landscape Design I** 3 Credits
Prerequisites: LAND 101 and LAND 102. Landscape drafting techniques and basic landscape planning for residential and small business settings utilizing the proper selection of ornamental plants consistent with design and environmental requirements. Included are lectures, slide and film presentations, and lab work with drafting tools and equipment.

**LAND 201 Landscape Management II** 3 Credits
Prerequisites: LAND 103. Takes advantage of growing season experiences to reinforce what is taught in the prerequisite course by textbook and lecture. Actual on-site observation, as well as hands on experience is planned. Actual practice in the monitoring of pest problems is given.

**LAND 202 Landscape Design II** 3 Credits
Prerequisites: LAND 106. A follow up to Landscape Design I to show and give practice in somewhat more sophisticated techniques such as enhancement of drawings by color-use. Also, guidance and practice in making elevation drawings is given. Some introduction to the use of computer-aided drawings is given to the student.

**LAND 203 Insect Pests of Ornamentals** 3 Credits
Prerequisites: Program Chair Approval. Covers insect identification, structure, and life history; pest management of insects important to landscaping and tree care.

**LAND 204 Herbaceous Ornamentals and Grasses** 3 Credits
Prerequisites: Program Chair Approval. The identification of 125 annuals, perennials, and grasses that is important to landscape management. Slides and videos are used to introduce a list of non-woody plants which students may encounter in operating a landscape business. Bed principles for effective landscape displays will be covered. Cultural practices propagation technique, foliage, and flower descriptions, watering, disease, and insects are discussed.

**LAND 205 Tree Care Practices** 3 Credits
Prerequisites: LAND 101. Covers the basic knowledge and techniques used by one employed as an arborist in the care of larger mature trees. Includes climbing, pruning, felled, removals, soil relationships, and fertilization, tools and equipment, and safety procedures.

**LAND 206 Fundamentals of Horticulture** 3 Credits
Prerequisites: Program Chair Approval. Studies the basic horticulture of plant structure, growth, function, and development, including propagation, maintenance, and selection. Studies will include use of fertilization and pesticides for the control of diseases and pests.

**LAND 207 Soils** 3 Credits
Prerequisites: None. Studies the growth habits and culture of plants not particularly ornamental or frequently used in the landscape. However, knowledge of these plants will be useful to one employed in a garden center or service organization where this person is frequently expected to know answers to questions pertaining to gardening and horticulture.

**LIB 279 Liberal Arts Capstone Course** 1 Credit
Prerequisites: Successful completion of 40 program hours and Program Advisor approval. Provides a culminating experience designed to demonstrate the student's mastery of information literacy; ethical and responsible behavior; political, social, and environmental responsibility; and diversity awareness, both in general and in the student's area of concentration. May require a research project, presentation, and/or portfolio. Requires students to complete two sections of a college-approved standardized assessment of proficiency in math, writing, scientific inquiry, and/or critical thinking.

**LIBR 101 Introduction to Libraries and Library Services** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces students to the basic concepts of classification and cataloging within a library setting. Emphasis is placed on the development of a working knowledge of both descriptive and subject cataloging resources. Library of Congress and Dewey Decimal classification systems, copy cataloging, and MARC format.

**LIBR 202 Electronic Resources and Online Searching** 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. This course introduces students to essential electronic information sources (library catalogs, digital libraries, academic or gaged databases, government resources, and the Internet) used in a variety of research and personal applications.
LIBR 203 Library Services for Children 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An overview of the materials and services for children and young adults in a public library with emphasis on the role of the LTA. Emphasis is placed on developing a working knowledge of programming for youth ages 0-18. This course will also provide an overview of children’s literature, both classic and contemporary, and reference resources that will assist the LTA in providing reader's advisory to youth.

LIBR 204 Library Media Center Operations and Services 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An overview of the role of the Library Technical Assistant (LTA) in a School Library Media Center by offering an introduction to the purposes, functions, services, and organizational structure of school library media centers. Basic materials, policies, procedures, philosophies, terminology, and services that make up today’s media center services will be covered. A variety of activities will be included, such as field trips, online and written presentations, and group discussions and projects.

LIBR 205 Library and Media Materials and Equipment 3 Credits
Prerequisites: Instructor Approval. Covers the fundamentals of library/media center technology, including instructional technology, educational media, computers, and related technologies. The course covers basic library/media center technology concepts, media utilization, and the use of computers in support of teaching and learning.

LIBR 206 Library Assistant Practicum 3 Credits
Prerequisites: Regional Library Technical Assistant Advisor Approval. Students will gain new and varied support staff experiences compatible with their career plans, completed coursework and past work history. Special emphasis will be put on workplace survival skills and job seeking skills.

LIBR 207 Management and Supervision in Public Libraries 3 Credits
Prerequisites: LIBR 101, LIBR 103 and LIBR 104 or 3 years demonstrated experience working in public libraries using a check list signed by employer. Introduces basic concepts of management and supervision as they relate to public libraries. Topics include management and organizational theory, planning, governance, policy making, budgeting, human resource management and supervision, library cooperation, community relations, and marketing the library.

LOGM 101 Introduction to Materials Management 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032. Studies factors influencing the flow of materials in a manufacturing enterprise. Covers basics of production planning and control, purchasing, forecasting, inventory, and warehouse management.

LOGM 127 Introduction to Logistics 3 Credits
Prerequisites: None. A study of the basic concepts included in the field of logistics and supply chain management. Topics covered include: supply chain management, customer service, transportation, purchasing, inventory, and warehouse management.

LOGM 202 Physical Distribution 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Focuses on the major concepts and rationale for utilizing warehouse inventories to lower costs of transportation, improve customer service, avoid stockouts, and improve purchasing economies and seasonal variability.

MATH 015 Fundamentals of Algebra I 5 Credits
Prerequisites: Demonstrated competency through appropriate assessment (COMPASS ALG 22-54) or a grade of "C" or better in MATH 040. Concentrates on basic operations with fractions, integers, exponents, proportional reasoning, basic linear and literal equations, algebraic expressions, and linear graphs. Includes a variety of applications of these topics.

MATH 023 Essentials of Algebra I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment (COMPASS ALG 24-34 or PALG 55-100 and ALGE 0-23) or a grade of "C" or better in MATH 044 or MATH 015. Reviews signed numbers and basic linear equations. Concentrates on integer exponents, scientific notation, linear equations and inequalities, literal equations, polynomial operations, polynomial factoring, graphing linear equations, and applications.

MATH 035 Fundamentals of Algebra II 5 Credits
Prerequisites: Demonstrated competency through appropriate assessment (COMPASS ALG 35-51) or a grade of "C" or better in MATH 015 or MATH 023 or MATH 050. Reviews operations with polynomials, linear equations, inequalities and graphing. Concentrates on properties of rational equations, systems of equations, rational exponents and radicals, quadratics, functions and their graphs, and logarithmic and exponential functions.

MATH 043 Essentials of Algebra II 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment (COMPASS ALG 52-65) or a grade of "C" or better in MATH 023 or MATH 050. Reviews operations of polynomials, scientific notation, linear equations and inequalities, graphing linear equations, and factoring algebraic expressions. Concentrates on properties of integer and rational exponents and equations, systems of linear equations, radicals, radical equations, quadratic equations, functions both exponential and logarithmic, and their graphs, and applications.

MATH 111 Intermediate Algebra 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or a grade of "C" or better in MATH 050 or MATH 023. Reviews basic operations of polynomials, scientific notation, linear equations and inequalities, graphing linear equations, and factoring algebraic expressions. Concentrates on properties of integer and rational exponents, rational expressions and equations, systems of linear equations, radicals, radical equations, quadratic equations, functions and their graphs, and applications. A standard college level intermediate algebra course.

MATH 117 The Art of Geometry 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or a grade of "C" or better in MATH 015 or MATH 023 or MATH 050 or MATH 070. Course emphasizes visualization and appreciation of the beauty of mathematics through geometry; translates between visual and symbolic representations of objects used in art and design; applies mappings, symmetry, similarity, vectors, and geometric constructions of shapes to working with 2D and 3D figures; uses geometry software, hands-on techniques and models.

MATH 118 Concepts in Mathematics Transferable 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or a grade of "C" or better in MATH 015 or MATH 023 or MATH 050 or MATH 080. Through real world approaches, presents mathematical concepts of measurement, proportion, interest, equations and inequalities, probability and statistics. Brief survey of college mathematics.

MATH 121 Geometry-Trigonometry 3 Credits
Prerequisites: Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of "C" or better in MATH 035 or MATH 043. Includes polygons, similar figures, geometric solids, properties of circles, constructions, right triangles, angle measurements in radians and degrees, trigonometric functions and their application to right triangles, Pythagorean Theorem, laws of sines and cosines, graphing of trigonometric functions, trigonometric identities, vectors, and polar coordinates. Introductory study of geometry and trigonometry.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 127</td>
<td>Mathematics for Elementary Education I</td>
<td>3</td>
<td>MATH 111 or demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in MATH 035 or MATH 043. The course gives a theoretical treatment of common topics underlying an elementary mathematics curriculum. This course covers topics in elementary number theory. Students will be encouraged to explore, make and debate conjectures, build connections among concepts, and solve problems from their explorations. The selection of topics presented in this course is based upon standards and recommendations for the mathematical content knowledge essential for prospective teachers made by the National Council of Teachers of Mathematics.</td>
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<tr>
<td>MATH 128</td>
<td>Mathematics for Elementary Education II</td>
<td>3</td>
<td>MATH 111 or demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in MATH 035 or MATH 043. This course gives a theoretical treatment of common topics underlying an elementary mathematics curriculum. This course covers algebraic equations, probability, and statistics. Students will be encouraged to explore, make and debate conjectures, build connections among concepts, and solve problems from their explorations. The selection of topics presented in this course is based upon standards and recommendations for the mathematical content knowledge essential for prospective teachers made by the National Council of Teachers of Mathematics.</td>
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<tr>
<td>MATH 129</td>
<td>Mathematics for Elementary Education III</td>
<td>3</td>
<td>MATH 111 or demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in MATH 035 or MATH 043. The course gives a theoretical treatment of common topics underlying an elementary mathematics curriculum. This course covers plane and solid geometry, and measurement. Students will be encouraged to explore, make and debate conjectures, build connections among concepts, and solve problems from their explorations. The selection of topics presented in this course is based upon standards and recommendations for the mathematical content knowledge essential for prospective teachers made by the National Council of Teachers of Mathematics.</td>
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<tr>
<td>MATH 131</td>
<td>Algebra/Trigonometry I</td>
<td>3</td>
<td>Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of &quot;C&quot; or better in MATH 035 or MATH 043. Presents an in-depth study of functions, quadratic, polynomial, radical, and rational equations, radicals, complex numbers, right triangle trigonometry, oblique triangles, vectors, and graphs of sine and cosine functions. First in a series of two courses of College Algebra/Trigonometry.</td>
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<tr>
<td>MATH 132</td>
<td>Algebra/Trigonometry II</td>
<td>3</td>
<td>MATH 131. Continues study of algebra and trigonometry including systems of equations, matrices, graphing of trigonometric functions, trigonometric equations and identities, rectangular and polar coordinates, complex numbers, exponential and logarithmic functions and conics. Second in a series of two courses of College Algebra/Trigonometry.</td>
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<tr>
<td>MATH 133</td>
<td>College Algebra with Analytic Geometry</td>
<td>4</td>
<td>Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of &quot;C&quot; or better in MATH 035 or MATH 043. Presents an in-depth study of functions, quadratic, polynomial, radical, and rational equations, radicals, complex numbers, systems of equations, matrices, exponential and logarithmic functions, and conics. A standard College Algebra course.</td>
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<tr>
<td>MATH 134</td>
<td>Trigonometry</td>
<td>2</td>
<td>Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of &quot;C&quot; or better in MATH 035 or MATH 043. Presents an in-depth study of right triangle trigonometry, oblique triangles, vectors, graphs of trigonometric functions, trigonometric identities and equations and complex numbers in rectangular and polar/trigonometric forms, rectangular and polar coordinates. A standard college trigonometry course.</td>
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<tr>
<td>MATH 135</td>
<td>Finite Math</td>
<td>Transfer IN 3</td>
<td>Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of &quot;C&quot; or better in MATH 035 or MATH 043. Surveys solving and graphing linear equations and inequalities, elementary set theory, matrices and their applications, linear programming, and elementary probability. A standard finite mathematics course.</td>
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<tr>
<td>MATH 136</td>
<td>College Algebra</td>
<td>Transfer IN 3</td>
<td>Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of &quot;C&quot; or better in MATH 035 or MATH 043. Presents an in-depth study of functions, quadratic, polynomial, radical, and rational equations, radicals, complex numbers, systems of equations, matrices, rational functions and exponential and logarithmic functions. MATH 136 and MATH 137 together comprise a standard two-semester college algebra and trigonometry course.</td>
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<tr>
<td>MATH 137</td>
<td>Trigonometry with Analytic Geometry</td>
<td>Transfer IN 3</td>
<td>Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of &quot;C&quot; or better in MATH 035 or MATH 043. Presents an in-depth study of right triangle trigonometry, oblique triangles, vectors, graphs of trigonometric functions, trigonometric identities and equations and complex numbers in rectangular and polar/trigonometric forms, rectangular and polar coordinates and conics.</td>
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<tr>
<td>MATH 141</td>
<td>Mathematics for Elementary Teachers</td>
<td>4</td>
<td>Successful completion of MATH 111 or demonstrated competency through appropriate assessment or a grade of &quot;C&quot; or better in MATH 035 or MATH 043. An in-depth treatment of common topics underlying an elementary mathematics curriculum. Students in the course will gain an appreciation for mathematics and will add to their pedagogical expertise by gaining conceptual understanding of elementary mathematics through the use of selected modes, materials, and problem solving situations. The course is designed to connect knowledge of the real number system to other subjects. The selection of topics presented in this course is based upon standards and recommendations for the mathematical content knowledge essential for prospective teachers made by the National Council of Teachers of Mathematics, the Mathematical Association of America, and the Indiana Professional Standards Board.</td>
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<tr>
<td>MATH 200</td>
<td>Statistics</td>
<td>3</td>
<td>MATH 131 or MATH 133 or MATH 135 or MATH 136. Provides study in the collection, interpretation and presentation of descriptive and inferential statistics, including measures of central tendency, probability, binomial and normal distributions, hypothesis testing of one- and two-sample populations, confidence intervals, chi-square testing, correlation, data description and graphical representations. An introductory statistics course.</td>
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<tr>
<td>MATH 201</td>
<td>Brief Calculus I</td>
<td>Transfer IN 3</td>
<td>Demonstrated competency through appropriate assessment or MATH 131 and MATH 133 or MATH 136. An introductory course in calculus. Fundamental concepts and operations of calculus including algebraic, exponential and logarithmic functions: limits, continuity, derivatives, points-of-infection, first-derivative test, concavity, second-derivative test, optimization, antiderivatives, integration by substitution, and elementary applications of the derivative and of the definite integral.</td>
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<tr>
<td>MATH 202</td>
<td>Brief Calculus II</td>
<td>Transfer IN 3</td>
<td>MATH 201. Covers topics in elementary differential equations, calculus of functions of several variables and infinite series.</td>
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</tbody>
</table>
| MATH 211    | Calculus                                          | Transfer IN 4 | Demonstrated competency through appropriate assessment or MATH 131 and MATH 132 or MATH 133 and MATH 134 or MATH 136 and MATH 137. Reviews the concepts of exponential, logarithmic and inverse functions. Studies in depth the fundamental concepts and operations of calculus including limits, continuity, differentiability including implicit and logarithmic differentiation. Applies differ-
ential calculus to solve problems in the natural and social sciences, to solve estimation problems and to solve optimization problems.

Applies differential calculus to sketch curves and to identify local and global extrema, inflection points, increasing/decreasing behavior, concavity, behavior at infinity, horizontal and vertical tangents and asymptotes, and slant asymptotes. Applies the concept of Riemann sums and antiderivatives to find Riemann integrals. Applies the fundamental theorem of calculus to solve initial value problems, and to find areas and volumes and the average values of a function.

MATH 212 Calculus II 3 Credits
Prerequisites: MATH 211. Studies the techniques of substitution, integration by parts, trigonometric integrals, partial fractions and trigonometric substitution to evaluate integrals. Applies Simpson's rule and other elementary numerical quadrature methods to approximate integrals. Applies the integral calculus to find arc lengths, areas of surfaces of revolution and to solve force and work problems. Applies the direction field technique to find graphical solutions of differential equations. Applies Euler's technique to approximate the solution of initial value problems. Studies techniques of solving separable differential equations. Studies techniques to determine convergence of sequences and series. Studies techniques to determine the power series representation of functions.

MATH 218 Calculus with Analytic Geometry I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or MATH 131 and MATH 132 or MATH 133 and MATH 134 or MATH 136 and MATH 137. Topics from analytic geometry, concept and properties of limits, concept of mathematical continuity definition and procedures for differentiation, and definition and procedures for anti-differentiation.

MATH 219 Calculus with Analytic Geometry II 3 Credits
Prerequisites: MATH 218. Topics from Calculus and Analytic Geometry I, calculus to hyperbolic and inverse trigonometric functions, first and second order differential equations, integration by parts and partial fractions, convergence, Taylor and Maclaurin series expansions, and L'Hopital's rule.

MATH 221 Calculus for Technology I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment, or MATH 131 and MATH 132 or MATH 133 and MATH 134 or MATH 136 and MATH 137. First course in a two-semester sequence in the techniques of calculus, with an emphasis on how they are applied to technology. Topics include the calculus of transcendental functions, techniques of integration, differential equations, infinite series, and applications of these concepts.

MATH 235 Discrete Mathematics 3 Credits
Prerequisites: MATH 135. Introduction to the suite of mathematical and logical tools used in information sciences including automata and computability theory, elementary probability and statistics, and basics of classical information theory.

MATH 261 Multivariate Calculus 4 Credits
Prerequisites: MATH 212 or MATH 219. Solid analytic geometry, partial differentiation, multiple integrals.

MATH 264 Differential Equations 3 Credits
Prerequisites: MATH 212. A first course in ordinary differential equations. The course will develop topics from a dynamical systems perspective and use technology to treat these topics graphically, numerically, and analytically. In addition to the skills of logical analysis and creative problem solving, this course will enhance the student's ability to analyze problems orally and in writing, in addition to mastering the mathematical skills used in this analysis.

MATH 265 Linear Algebra 3 Credits

MEAS 102 First Aid and CPR 3 Credits
Transfer IN 2 Credits
Prerequisites: None. Provides students with information to recognize emergency situations, know proper course of action with different types of emergencies, and apply appropriate first aid including CPR.

MEAS 107 Administrative I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Provides a basic understanding of the administrative duties and responsibilities pertinent to medical offices. Includes instruction in medical correspondence and records, case histories of patients, filing, telephone procedures, appointment scheduling, receptionist duties, and processing mail. Written, verbal and nonverbal communication according to patient needs are covered, as well as documentation and associated legal and ethical boundaries. Medical law, ethics, state and federal laws are covered.

MEAS 108 Administrative II 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015 and ENGL 025 and ENGL 032. Provides instruction in medical office financial administration, bookkeeping, materials management, daily financial transactions with patients and outside sources, banking procedures, billing and collection. General office policies are explained. Inventory management of administrative supplies and equipment is covered. Community resources available to patients are explored.

MEAS 135 Medical Word Processing and Transcription 3 Credits
Prerequisites: HLHS 101 and OFAD 019. Develops skills and knowledge of medical dictation, machine transcription, and word processing software. Includes typing and transcription of medical correspondence and a variety of medical reports.

MEAS 137 Medical Insurance and Basic Coding with Computer Applications 3 Credits
Prerequisites: HLHS 101. Provides an overview of medical insurance programs and the skills needed in handling insurance forms, CPT and ICD 9-CM coding and insurance reports as applied to the medical office. Includes simulated computer data entry for patient records, procedure and diagnostic codes, insurance processing and electronic transmission of claims.

MEAS 207 Integrated Medical Office Procedures 3 Credits
Prerequisites: MEAS 107 and MEAS 108. Provides instruction in medical office procedures using integrated computer programs that manage appointments, insurance documents, file maintenance and creation, management of medical correspondence, licensing and software update processes and data back-up files.

MEAS 213 Advanced Insurance Coding 3 Credits
Prerequisites: MEAS 137. Comprehensive coding skills and guidelines for both ICD-9 and HCPCS Levels I and II coding systems necessary to ensure accurate coding and maximize reimbursement for medical claim processing.

MEAS 215 Advanced Medical Terminology 3 Credits
Prerequisites: HLHS 101. A more detailed and advanced study of the derivatives of medical terms, symbols and signs. It presents an in-depth study of the correlation between medical vocabulary and the application of those terms in the anatomy and physiology of the body, related diseases, conditions and treatment.

MEAS 218 Pharmacology 3 Credits
Prerequisites: APHY 101, HLHS 101 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. Discusses the most common medications in current use with emphasis on classifications, uses, routes or administration, dosages, interactions, incompatibilities, and side effects. Emphasizes current 50 most commonly prescribed drugs. Addresses special precautions, legal aspects, and patient education and preparation and administration of medications.

MEAS 219 Medical Assisting Laboratory Techniques 3 Credits
Prerequisites: HLHS 101, APHY 101, and MEAS Program Chair
MEAS 220 Advanced Insurance Claims Processing  
3 Credits
Prerequisites: MEAS 137. Introduces additional instruction in medical record extraction and various aspects of insurance processing and follow-up. Provides discussion and additional information in the various insurance programs and related insurance coding competencies.

MEAS 221 Seminar I  
1 Credit
Prerequisites: None. Discusses topics of current interest in the medical assisting profession. Focuses on special interest project for students in the Medical Assisting Program. Uses field trips, guest speakers, audiovisual activities and seminars.

MEAS 227 Medical Office Management  
3 Credits
Prerequisites: MEAS 107, MEAS 108 and MEAS 137. An in-depth study of various influences on office functions providing a background for organization and management of a physician's office. Includes government and professional sources for consultation.

MEAS 235 Advanced Transcription  
3 Credits
Prerequisites: MEAS 135. Improves accuracy and speed of the medical transcriptionist utilizing various formats for medical transcription.

MEAS 238 Clinical I  
3 Credits
Prerequisites: HLHS 101 and MEAS Program Chair Approval. Presents theory and lab related to clinical aspects of the medical office. Provides students with information necessary to recognize emergency situations, know the proper course of action with different types of emergencies, and apply appropriate first aid. Allows students to become familiar with clinical duties and to gain the skills needed to perform them. Includes vital signs, asepsis, sterilization, nutrition, and treatment room procedures.

MEAS 239 Clinical II  
3 Credits
Prerequisites: MEAS 238. Presents a continuation of clinical skills and theory, and allows the student to become familiar with the following clinical duties: Medications, EKG's, X-ray, physical therapy, respiratory testing and other technical skills needed to assist the physician.

MEAS 240 Advanced Clinical Procedures  
3 Credits
Prerequisites: MEAS 239. Advances the knowledge and skills enabling the student to assist in clinical management in the medical and surgical specialties. Addresses health services in the community which are directed toward prevention of disease and maintenance and restoration of health.

MEAS 242 Disease Conditions  
3 Credits
Prerequisites: APHY 102 and HLHS 101. Presents the basic concepts of diseases, their courses and functional disturbances as they relate to body systems. Includes the precipitating risk factors and appropriate methods of patient education regarding various disease processes.

MEAS 256 Insurance CodingExternship  
3 Credits
Prerequisites: MEAS 213, MEAS 220, Professional CPR/AED certification and MEAS Program Chair Approval. Provides opportunities to observe, perform and discuss various insurance related competencies under supervision in selected physician offices, clinics or hospitals.

MEAS 258 Medical Assisting Clinical Externship  
3 Credits
Prerequisites: MEAS 218, MEAS 219, MEAS 239, APHY 102, Professional CPR/AED certification, and MEAS Program Chair Approval. Provides opportunities to observe, perform, and discuss various clinical competencies under supervision, with learning experiences obtained in selected physician offices, clinics or hospitals.

MEAS 259 Medical Assisting Administrative Externship  
3 Credits
Prerequisites: MEAS 137, Professional CPR/AED certification and MEAS Program Chair Approval. Provides opportunities to observe, perform, and discuss various administrative competencies under supervision, with learning experiences obtained in selected physician offices, clinics or hospitals.

MEAS 272 Spanish for Healthcare Providers  
3 Credits
Prerequisite: None. Provides instruction in understanding and communicating, basic medical office procedures, basic medical procedures, insurance filing procedures and basic procedures in regards to medical treatment, taking medications and the basic principles of mental health and applied psychology with patients whose primary language is Spanish.

MEAS 273 Transcription Practicum  
3 Credits
Prerequisite: Program Advisor Approval. Demonstrates competency of keyboarding (50 wpm corrected) or successful completion of course work. Provides the opportunity to discuss and perform transcription in a medical facility setting under supervision. Allows student to observe and perform various medical reports and the various functions of medical transcriptions.

MEAS 274 Nutrition and Disease  
3 Credits
Prerequisite: None. This course presents the basic principles of nutrition and the role nutrients play in maintaining good health, as well as their role on certain clinical conditions. This course introduces the characteristics, functions, and food sources of the major nutrient groups. Students will be made aware of nutrient needs throughout the life cycle. Students will learn to modify diets to meet various nutritional needs and to plan menus using modified diet principles. Students completing this course will be equipped to perform nutritional patient education in his or her role as a Medical Assistant.

MEAS 275 Sign Language for Health Care I  
3 Credits
Prerequisites: None. This course is a beginning Sign Language Class. It is designed to teach conversational skills in American Sign Language to a functional level for expressive and receptive use in Health Care and other settings. It also covers a brief history of Sign Language and Deaf Culture.

MEAS 276 Sign Language for Health Care II  
3 Credits
Prerequisites: None. This course is the second Sign Language Class in a series of two. It builds on the skills developed in Sign Language for Health Care I and is designed to teach more advanced conversational skills in American Sign Language to a functional level for expressive and receptive use in Health Care and other settings. It also continues to cover the history of Sign Language and Deaf Culture.

MEAS 299 CMA Comprehensive Review  
3 Credits
Prerequisites: MEAS Program Chair Approval. Designed to review the entire medical assisting program in preparation for the CMA national examination. Administrative, clinical and general information is covered. Testing procedures are addressed. Emphasis will be placed on job readiness and placement. The course will give continuing education units for the graduate CMA in order to fulfill their certification renewal requirements.

MEDL 101 Fundamentals of Laboratory Techniques  
3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025, ENGL 032 and MATH 050 or MATH 015 or MATH 023 and Program Advisor Approval. Introduces the elementary skills required in the medical laboratory. Subjects covered include: Laboratory math, quality control, pipetting skills, venipuncture techniques, microscopic skills, infection control and laboratory safety.

MEDL 102 Routine Analysis Techniques  
3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 050 and MATH 015 or MATH 023 and Program Advisor Approval. Course deals with the principles, practices and clinical laboratory techniques associated with routine analysis of urine.

MEDL 196 Introduction to Patient Care and Phlebotomy  
3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and program advisor approval. Introduces the student to the health care delivery system, instruction in specimen collection tech-
MEDL 197 Clinical Phlebotomy Experience 3 Credits
Prerequisites: MEDL 196. Covers the practice and demonstration of clinical applications of phlebotomy in the clinical setting.

MEDL 198 Clinical Phlebotomy Discussion 1 Credit
Prerequisites: Student must be in good standing and currently enrolled in MEDL Program. Designed for students to develop the professional socialization process that is necessary for functioning in a health care setting as well as review routine and special phlebotomy procedures in light of phlebotomist-patient interaction.

MEDL 201 Immunology Techniques 3 Credits
Prerequisites: Program Advisor Approval. Provides the student with a basic understanding of the principles of the human immunologic system as well as an understanding of and experience in, routine testing.

MEDL 202 Immunohematology Techniques 3 Credits
Prerequisites: MEDL 201 and Program Advisor Approval. Provides instruction on the principles, practice, and procedures used for blood banking in the clinical laboratory.

MEDL 205 Hematology Techniques I 3 Credits
Prerequisites: MEDL 101, MEDL 102 and Program Advisor Approval. This course presents theory of blood formation and function and routine hematologic procedures; emphasizes upon differentiation of normal and commonly encountered abnormal blood cells. Also covers clinical pathologic correlations.

MEDL 206 Hematology Techniques II 3 Credits
Prerequisites: MEDL 205 and Program Advisor Approval. This course continues the study of principles and procedures in hematology. It introduces procedures which lie outside those routinely performed. Continues cell differentiation, with emphasis upon early and less commonly encountered abnormal cells, with associated special stains. Includes clinical pathologic correlations.

MEDL 207 Chemistry Techniques I 3 Credits
Prerequisites: CHEM 101 or CHEM 111 and Program Advisor Approval. Presents principles, procedures, and clinical correlations in routine chemical analysis of the blood and other body fluids. Provides laboratory experiences in basic methods, selected to develop routine analytical abilities and to promote the ability to recognize sources of error.

MEDL 209 Routine Analysis Applications 1 Credit
Prerequisites: MEDL 102. Provides the student with study of the clinical applications of routine analysis in the hospital laboratory, including physical, chemical, and microscopic examination of urine.

MEDL 210 Hematology Applications 3 Credits
Prerequisites: MEDL 206 and Program Advisor Approval. Knowledge and skill development pertaining to the principles and techniques of hematology in the hospital laboratory.

MEDL 212 Immunology Applications 1 Credit
Prerequisites: MEDL 201 and Program Advisor Approval. Studies and practices the clinical application of serology in the hospital laboratory.

MEDL 213 Immunohematology Applications 3 Credits
Prerequisites: MEDL 202 and Program Advisor Approval. Applications of principles and procedures used in blood banking in the hospital laboratory are taught in the clinical laboratory setting.

MEDL 215 Parasitology and Mycology 1 Credit
Prerequisites: MEDL 222. Examines the isolation, identification, life cycles and disease processes of pathogenic and opportunistic fungi and parasites.

MEDL 218 Clinical Pathology 3 Credits
Prerequisites: Program Advisor Approval. The course is a review course in preparation for the National Registry Examination and will include current testing procedures, disease conditions, diagnosis, etiologies, clinical symptoms and related laboratory findings.

MEDL 221 Clinical Microbiology Applications 3 Credits
Prerequisites: MEDL 222. Provides the student with the study of applications and clinical practices of microbiology found in a clinical laboratory.

MEDL 222 Microbiology Techniques 3 Credits
Prerequisites: Program Advisor Approval. This course will instruct the student in the principles of bacteriology including: gram-negative and gram-positive bacilli and cocci, fastidious organisms and an overview of anaerobic organisms and acid-fast bacteria. Instruction in basic laboratory techniques in clinical bacteriology will also be included.

MEDL 224 Chemistry Applications 3 Credits
Prerequisites: MEDL 227. Corequisites: MEDL 208. Study and practice of the analytical aspects of clinical chemistry in the hospital laboratory.

MEDL 227 Chemistry Techniques II 2 Credits
Prerequisites: Program Advisor Approval. This course continues the study of principles, procedures, and clinical correlations in the chemical analysis of blood and other body fluids. Introduces procedures which lie outside those routinely performed in the clinical chemistry laboratory, including clinicopathologic correlations.

MEDL 280 Co-op/Internship 1-5 Credits
Prerequisite: Program Advisor Approval. Provides clinical laboratory experience in an affiliated laboratory. Gives students the opportunity to practice and employ fundamental lab skills and learn advanced techniques in a supervised setting. Provides on-the-job experience while earning credit toward the associate degree. Also provides a mechanism for a skills refresher course for credentialed individuals who have been out of the field for a period of time.

METC 105 Introduction to Engineering Technology 3 Credits
Prerequisites: None. Provides the beginning engineering technology student with the basic tools necessary for success in their chosen field. Topics include: survey of engineering technology careers, problem solving, introduction to engineering mathematical and statistical concepts, technical laboratories, data presentation and report writing, use of scientific calculators, engineering calculations, metrology, use of spreadsheets for data analysis and presentation, and engineering ethics and responsibilities.

METC 111 Statics 3 Credits
Prerequisites: MATH 136. Studies applied mechanics dealing with bodies at rest without the use of calculus. Covers units, vectors, forces, equilibrium, moments and couples, planar force systems, distributed forces, analysis of structures, and friction.

METC 143 Materials and Processes 3 Credits
Prerequisites: MATH 111 or demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 035 or MATH 043 and ENGL 025 and ENGL 032. Introduces students to structures, properties, processing, and applications of metals and ceramics commonly used in industry and develop problem solving skills in the areas of material selection, evaluation, measurement and testing.

METC 201 Engineering Projects in Community Service (EPICS) 3 Credits
Prerequisite: Advisor Approval Required. Projects in this course center around engineering and technology needs of the community partners, but may involve students from many disciplines as integral members of the team. EPICS projects are intended to solve real problems, and will be defined in consultation with project partners from community service agencies. The scope of the projects will include: problem identification, specification development, conceptual design, production and service/maintenance.

METC 220 CAD for Mechanical Design 3 Credits
Prerequisites: DESN 102, DESN 103, METC 105. An introduction and exploration of solid modeling using AutoCAD Inventor software. Emphasis is placed on learning the basic concepts of creating parts using software-specific modeling and modification commands. The concepts of parent-child relationships as well as parametric relations are introduced. Assemblies of components are created based upon student-created parts, and the generation of engineering drawings will be required.

MKTG 101 Principles of Marketing 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. Introduces the marketing role in society and how it affects the marketing strategy. Emphasizes the
marketing mix, product planning, and the effects of the demographic dimension on the consumer market.

MKTG 102 Principles of Selling 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. Provides an overview of the selling process. Includes the psychological process of selling and develops skills through a series of selling situations.

MKTG 104 Promotion Management 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. Provides an overview of promotion methods as they interact in the marketing mix, which includes price, channel of distribution, and product.

MKTG 110 Consumer Behavior 3 Credits
Prerequisites: MKTG 101. Study of the basic principles of consumer behavior which offers insight into the buyer-seller relationship. Application of theories from psychology, social psychology and economics are examined. Course examines concepts that have implications for management planning decisions.

MKTG 201 Introduction to Market Research 3 Credits
Prerequisites: MKTG 101 and MATH 111. Presents basic research methods with emphasis on research planning, questionnaire design, data analysis, and effectively communicating research results.

MKTG 204 Marketing Management 3 Credits
Prerequisites: ACCT 101, BUSN 105 and MKTG 101. Focuses on the analysis, implementation and control of marketing strategy. Emphasizes the major decisions management faces in its efforts to harmonize the objectives and resources of the organization with the needs and opportunities of the marketplace.

MKTG 205 Principles of Insurance 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Introduces the risks faced by business firms including property, liability and personal losses, and how they are handled. Presents insurance contracts and their uses. Includes an overview of life insurance, health and pension insurance, public policy, government regulations and social insurance.

MKTG 213 Marketing in Non-profit Organizations 3 Credits
Prerequisites: MKTG 101. Introduces the use of marketing management to persons working in the non-profit environment, with emphasis on the marketing mix and the marketing concept and their specific application to the non-profit sector. This class is also designed for marketing majors to understand the growing world of non-profit marketing.

MKTG 220 Principles of Retailing 3 Credits
Prerequisites: MKTG 101 and demonstrated competency through appropriate assessment or earning a grade of “C” or better in MATH 050 or MATH 015 or MATH 023. Studies retailing concepts and practices, including retail merchandise planning, buying, pricing, promotion, and control in established retail operations. Attention is given to managerial and operational skills.

MKTG 221 Real Estate Broker 3 Credits
Prerequisites: One-year experience as an active licensed Indiana Real Estate Salesperson associated with a licensed Indiana Real Estate Broker. Mathematical competency as stipulated in Indiana Administrative Code (876 IAC 2-11 through 876 IAC 2-14). To prepare the student for the State of Indiana Real Estate broker licensing examination.

MKTG 222 Real Estate Sales 3 Credits
Prerequisites: Program Advisor Approval. To prepare students for taking the State of Indiana Real Estate Salesperson licensing exam.

MKTG 223 Residential Appraising I 5 Credits
Prerequisites: Program Advisor Approval. To substantially prepare the student for taking the State of Indiana licensed trainee residential appraiser examination. After taking this 75-hour course the student must take an additional 15 classroom hours in Uniform Standards (USPAP) before being eligible to sit for the State Trainee examination.

MKTG 224 Uniform Standards of Professional Appraisal Practice (USPAP) 1 Credit
Prerequisites: Program Advisor Approval. It is not a requirement to hold a real estate license of any kind. A real estate broker without an appraiser’s license must comply with Rule 6 — Standards of Practice to do appraising. Preparation for the State of Indiana licensed residential appraiser trainee examination. This supplements MKTG 223, in meeting the 90-classroom hour prerequisite for being eligible to sit for the trainee examination.

MKTG 225 Residential Appraising II 4 Credits
Prerequisites: Program Advisor Approval. To substantially prepare and enhance appraisal students’ basic knowledge of real estate appraisal principals and practices. This course builds upon the basic appraisal coursework for in-depth discipline study and to prepare students for license upgrades.

MKTG 240 Internet Marketing 3 Credits
Prerequisites: CINS 101 and MKTG 101. Provides an introduction to the Internet as a marketing strategy including product, pricing, communications, and distribution considerations. Profi les Internet users and market segments and reviews the Internet as a primary and secondary marketing research tool as well as a relationship-marketing tool.

MORT 100 Orientation to Funeral Service 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. An introduction to funeral service, ancient history, historical development, present funeral practices, values of funeral service, personal qualifications, and ethics. Field trips to investigate current problem areas in funeral service are required.

MORT 101 Grief Psychology for Funeral Service 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of “C” or better in ENGL 025 and ENGL 032. An examination of theory and management of grief, the process of mourning, and the value of the funeral service in bereavement. Grief reactions according to age and special types of loss will be examined. In addition, the course will cover the funeral director’s professional responsibilities to the families served.

MORT 102 Mortuary Law 3 Credits
Prerequisites: Program Advisor Approval. Principles of mortuary law; duties, rights and liabilities for final disposition. Business law; public and personal liability; business organization; licensing and zoning regulations. Probate proceedings, social security, and life insurance benefits, and ethical standards relating to funeral service.

MORT 103 Embalming Chemistry 3 Credits
Prerequisites: Students must be accepted into and enrolled in the Mortuary Science Program. Fundamentals of inorganic, organic, and biochemistry. Also chemistry of the human body, chemistry changes following death, toxicology, disinfection, and embalming chemicals. Basic principles of chemistry related to funeral service.

MORT 105 Embalming Theory I 3 Credits
Prerequisites: Accepted into the Mortuary Science Program. An introduction of basic vocabulary utilized by the professional embalmer. The purposes of embalming, as well as responsibilities, conduct and qualities of the professional embalmer are discussed. An inventory of typical preparation room instruments and supplies is examined. Basic embalming case analysis is investigated. Techniques for embalming non-complicated cases are also investigated.

MORT 205 Embalming Theory II 3 Credits
Prerequisites: MORT 105. This course is a continuation of MORT 105 Embalming Theory I. This course investigates advanced embalming case analysis. Strategies and techniques for embalming complicated...
Prepare the student for the National Board Examination. This examination is a graduation requirement and students must successfully complete the examination in order to become licensed funeral directors/embalmers in most states. MORT 220 reviews the major learning objectives of other MORT courses as they relate to the National Board Examination. The course also examines various testing methodologies and test taking strategies.

MORT 207 Embalming Practicum I 3 Credits
Prerequisites: None. Corequisites: MORT 206 and MORT 209. One laboratory session per week for one semester in an appropriate mortuary setting. Practical experience in all phases of embalming including embalming, directing, and funeral home operation. Students are placed in local funeral homes to work under the direct supervision of a qualified licensed embalmer to gain knowledge of procedures used in embalming human remains for funeral services. MORT 206 will work in conjunction with the practical experience.

MORT 208 Pathology for Funeral Service 3 Credits
Prerequisites: APHY 102, MORT 103 and BIOL 211. Divisions and importance of pathology, nature and causes of disease, to include inflammation, repair and recuperation of tissue, tumors, disease of the heart, respiratory and digestive systems are covered as well as microscopic examination of autopsy and surgical specimens, with particular emphasis on those conditions which relate to or affect the embalming or restorative art process.

MORT 209 Restorative Art 3 Credits
Prerequisites: None. Corequisites: MORT 206 and MORT 207. The study of facial anatomy, color relationships, and restorations. Development of skills in anatomical modeling and cosmetics.

MORT 212 Funeral Service Management 4 Credits
Prerequisite: Accepted into the Mortuary Science Program. Designed to give the student a working knowledge of equipment items, manufacturing and use of such items. Presents a thorough study of caskets and vaults. Uses field trips and guest lecturers as learning tools. The curriculum is divided into two sections. The first covers construction and features of caskets, outer burial containers, and other funeral related products. The second section of the curriculum examines current practices and procedures, funeral direction, psychological and sociological aspects of funeral service, funeral home operation, professional overview and image, professional regulations and effective personnel management.

MORT 217 Embalming Practicum II 3 Credits
Prerequisites: MORT 103, MORT 207, MORT 209, APHY 102 and BIOL 211. Students work in a local approved funeral home under the direct supervision of a licensed embalmer. Develops practical embalming skills, combining work experience in funeral home. The student will work 8 (10 hours) per week in the funeral home.

MORT 220 National Board Exam Review 2 Credits
Prerequisite: Program Advisor Approval. This course is designed to

will be acquired using multiple machine tool controllers.

MPRO 108 Metrology 3 Credits
Prerequisites: None. Introduction to precision measurement techniques and applications. Provides instruction in surface plate inspections, gauging techniques and instruments, optical comparators, hardness testing, and Coordinate Measuring Machines (CMM). Presents calibration and measurement system analysis.

MPRO 109 Quality Control Concepts and Techniques 3 Credits
Prerequisites: None. Covers current quality control concepts and techniques in industry with emphasis on modern manufacturing requirements. Studies the fundamental tools of Statistical Process Control which are used in industry to reduce costs and increase productivity at a predictable quality level. Emphasizes principles and techniques of SPC to ensure prevention instead of detection of problems. Includes basic statistical and probability theory, sampling techniques, process control charts, the nature of variation, histograms, attributes and variable charts.

MPRO 201 Lean Manufacturing 3 Credits
Prerequisites: None. Introduces the philosophical background, historical development, fundamental concepts, operating fundamentals, and the organizational rationale for the implementation of lean disciplines in manufacturing. The use and implementation of lean disciplines has generally resulted in the ability of an enterprise to develop a work environment that promotes continuous improvement, eliminates waste, reduces operating cost, improves quality, and achieves measurable improvement in customer satisfaction.

MPRO 203 Production Technology 3 Credits
Prerequisites: None. Introduces the different types of work-holding devices, their uses, advantages and disadvantages in CNC milling and lathe machines. The devices will be expanded to include manual and hydraulic work-holding devices. Topics will also include the different types of cutting fluids, coolants and oils used in advanced machining production equipment.

MPRO 205 Manufacturing Metals 3 Credits
Prerequisites: None. Introduces the basic concepts of metals including composition, properties, and usage in Manufacturing. Both ferrous and non-ferrous materials will be examined in the course. The course will also provide an overview of the principles and practices of heat treatment of metals.

MPRO 207 Production Machine Tooling 3 Credits
Prerequisites: None. Introduces the basic concepts of production machine tooling setup and adjustments. Tooling used in both milling and turning is introduced. ANSI standards for insert and machine tooling are defined.
MPRO 227 Geometric Dimensioning and Tolerancing 3 Credits
Prerequisites: MPRO 102. Introduces the fundamental principles of geometric dimensioning and tolerancing according to the latest ANSI standards. Students will apply geometric dimensioning and tolerancing symbols along with tolerances of form, profile, orientation, run-out, and location to mechanical problems.

MPRO 250 Advanced Lean Manufacturing 3 Credits
Prerequisites: MPRO 201. Continues the philosophical background, historical development, fundamental concepts, operating fundamentals, and the organizational rationale for the implementation of lean disciplines in manufacturing. Practical application of Lean theory by the Toyota Production System will be demonstrated and explained. Further develops the use and implementation of lean disciplines that results in the ability of an enterprise to develop a work environment that promotes continuous improvement, eliminates waste, reduces operating cost, improves quality, and achieves measurable improvement in customer satisfaction.

MRTC 107 Motorcycle Engine Principles and Design 3 Credits
Prerequisites: None. Introduces engine dynamics, theory of engine operation and characteristics of engine design. Studies R & R, visual inspection, precision measuring, gaskets, lubricants, sealants, coolants of modern engines, and engine service.

MRTC 127 Motorcycle Engine Service and Repair 3 Credits
Prerequisites: None. Studies precision tools, equipment, and procedures needed to repair today's modern engine. Repair/proper assembly, and installation techniques applicable to the modern engine are included.

MRTC 173 Motorcycle Transmission/Drive Service and Repair 3 Credits
Prerequisites: None. Studies theory and operation, diagnosis, testing and repair of motorcycle transmissions and drivelines.

MRTC 174 Motorcycle Frame and Electrical System 3 Credits
Prerequisites: None. Introduces the fundamentals and principles of motorcycle electronics and diagnosis. Extensive use of digital multimeters and circuit troubleshooting is covered. Emphasis is placed on reading and understanding wiring diagrams and symbols. Diagnosing, starting, and charging systems are also covered.

MRTC 270 Motorcycle High Performance 3 Credits
Prerequisites: None. Covers the fundamentals, construction, components and design of high performance motorcycles for various racing venues. The course will also cover related systems; cooling, lubrication, suspension and braking. Students will study the theory, design and requirements of high performance engines/systems. Emphasis in this course is placed on bolt on performance modifications.

MTTC 101 Introduction to Machining 3 Credits
Prerequisites: None. Instructs the student in shop safety, industrial terminology, tools and machine tooling, measurement and layout. Includes laboratory exercises to begin project completion of turning, milling, and grinding applications.

MTTC 102 Turning Processes I 3 Credits
Prerequisites: None. Instructs students in shop safety, industrial terminology, and provides laboratory experience toward project completion on the conventional lathe.

MTTC 103 Milling Processes I 3 Credits
Prerequisites: None. Instructs students in shop safety and industrial terminology and provides laboratory experience toward project completion on the vertical and/or horizontal milling machine.

MTTC 104 Machinery Handbook 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a "C" or better in MATH 044 or MATH 015. Explores the intent and use of the machinery handbook. Applies principles and concepts in the machinery handbook to projects in the industry.

MTTC 105 Abrasive Processes I 3 Credits
Prerequisites: None. Provides shop safety, industrial terminology, and laboratory experiences on abrasive processing machines. Includes super abrasives technology processes.

MTTC 106 Print Interpretation 3 Credits
Prerequisites: None. Applies mathematics in solving engineering and design-related problems in the areas of die design, fabrication, assembly, special machinery, die casting and molds. Emphasizes GDT tolerancing.

MTTC 107 Turning and Milling Processes 3 Credits
Prerequisites: None. Provides shop safety, industrial terminology and laboratory experiences on conventional lathe and milling machines.

MTTC 202 Advanced Turning Processes II 3 Credits
Prerequisites: MTTC 102 or MTTC 110. Advanced training in shop safety and industrial terminology utilizing the conventional engine lathe.

MTTC 203 Milling Processes II 3 Credits
Prerequisites: MTTC 103 or MTTC 110. Covers shop safety, industrial terminology, and provides advanced laboratory experience towards project completion on the vertical and/or horizontal milling machine.

MTTC 205 Abrasive Processes II 3 Credits
Prerequisites: MTTC 105. Continuing emphasis on shop safety, industrial terminology, and advanced laboratory experience towards project completion on a variety of abrasive processing machines.

MTTC 206 Tooling Design I 3 Credits
Prerequisites: MTTC 110 and MTTC 105 or MTTC 102 and MTTC 103 and MTTC 105. Introduces concepts of tooling design, assembly, and standards of fabrication. Emphasizes jig and fixture design/components, application and operational characteristics.

MTTC 207 Tooling Design II 3 Credits
Prerequisites: MTTC 105 and MTTC 110. Covers concepts of complex tooling design. Emphasizes forming, blanking, piercing and progressive-type die design. Includes die applications, components, manufacturing, and assembly techniques.

MTTC 208 CNC Programming I 3 Credits
Prerequisites: Program Advisor Approval. Introduces two and three axis CNC machining. Develops the theory of programming in the classroom with applications of the program accomplished on industry-type machines. Studies terminology of coordinates, cutter paths, angle cutting, and linear and circular interpolation.

MTTC 209 CNC Programming II 3 Credits
Prerequisites: MTTC 208. Provides further study in computer-aided numerical control programming. Focuses on canned cycles, loops, macros, thread cycles, drilling, and pocket milling cycles.

MTTC 210 Interactive CNC 3 Credits
Prerequisites: MTTC 208. Introduces advanced applications of computer assisted part programming and simulation, language codes, setup and operation, troubleshooting, and problem solving in a CNC turning center and CNC machining center. Includes related mathematical skills.

MTTC 211 Advanced Programming Techniques 3 Credits
Prerequisites: MTTC 210. Includes the application of advanced CNC programming techniques to industrial machining. Using down loading and up loading techniques utilized through advanced projects.

MTTC 220 CAD/CAM I 3 Credits
Prerequisites: MTTC 208. Covers the development of various machine routines. Introduces computer-assisted machining as it relates to automated milling and machining centers. Emphasizes proper programming techniques, control familiarity, file data and machining functions.

MTTC 221 CAD/CAM II 3 Credits
Prerequisites: MTTC 220. Covers the development of 3-D shapes and the codes necessary to produce parts. Requires student to design a new product or modify an existing design. Includes creating surface curves. Focuses on creating tool paths for complex 3-D surfaces.

MTTC 225 Introduction to Mold Making 3 Credits
Prerequisites: MTTC 110. Introduces the student to the basic funda-
MTC 240 Machine Operations I 3 Credits
Prerequisites: MTC 102 and MTC 103. Students will gain additional classroom experience concerning bandsaws, engine lathes, vertical mills, surface grinders, Harig® Grinding Fixture, and jig grinder. Measurement and layout will be performed at an advanced level. Classroom activities will concentrate on heat-treatment of tool steels, classes of ANSI H7 tolerances, electrical discharge machining, carbide tooling and basic metal stamping die theory. Experience will also be gained in the calculation of labor and material costs. In addition, students will also be introduced to metal stamping die construction and conversational programming on CNC vertical mills. Students will also be required to create a comprehensive notebook due at the end of the semester.

MTC 241 Machine Operations II 3 Credits
Prerequisites: MTC 240. Emphasizes basic tool construction and close tolerance machining. Using the various types of equipment found in the laboratory, students rough machine, heat treat and precision grind detail parts to tolerances within 0.0005" consistently. Classroom activities concentrate on precision setup, inspection work and basic tool construction. Experience is gained in basic conversational CNC programming.

MTC 242 CNC Machining 3 Credits
Prerequisites: MTC 208. Introduces and instructs the student in all aspects of Computer Numeric Control (CNC) machining. The student will program, set up and operate CNC mills and lathes utilizing CAD/CAM for fixture and part design and verification. Students continually improve programming, set up and cycle time efficiency. Students inspect and document the quality of production parts and compare their performance with an industry benchmark for each project.

MTC 243 Tool and Die Making I 3 Credits
Prerequisites: MTC 101 and MTC 110 and MTC 208 or MTC 101 and MTC 103 and MTC 208. Focuses on construction of a two-stage progressive die that incorporates interchangeable details. Each student manufactures a die that incorporates the parting principle and performs the following operations: forming, piercing, and parting. In addition, lecture material covers computations on blank lengths, diameters, blanking and piercing operations, drawing, progression, and timing. Experience is gained in CNC machining and progressive die troubleshooting.

NGAS 101 Fundamentals of Natural Gas 3 Credits
Prerequisites: None. Introduces the characteristics and hazards of natural gas, prevention of accidental ignition, recognizing emergency conditions, inside and outside leak investigation methods and detection, instrumentation, carbon monoxide, and basic external corrosion prevention.

NGAS 102 Natural Gas Pipe Joining 3 Credits
Prerequisites: NGAS 101. Introduces the types of natural gas pipeline materials, joining techniques, coating maintenance, blowing gas scenarios, repair methods, and safety precautions.

NGAS 203 Natural Gas Regulatory and Compliance Issues 3 Credits
Prerequisites: None. The course covers the Department of Transportation regulations related to natural gas companies, including leak survey and patrol requirements.

NGAS 204 Natural Gas Construction Techniques 3 Credits
Prerequisites: NGAS 101. Introduces the methods used to locate and install natural gas lines, basic design theory, backfilling, purging, valve inspection and maintenance, pressure testing, customer regulations and relief design, explanation of hoop stress, shutting down the flow of gas, basic tapping and stopping techniques, construction equipment and current methods and common materials.

NRSG 100 Fundamentals of Nursing 3 Credits
Prerequisites: Admission to a Nursing Program. Corequisites: NRSG 101. Examines roles of the licensed practical nurse and registered nurse as members of the health care team. Provides an overview of the five components of the nursing process. Explores the nurse's role in providing for basic physiological, psychosocial, cultural, intellectual, and spiritual needs of patients. Introduces fundamental principles of therapeutic communication and teaching/learning.

NRSG 103 Medical-Surgical Nursing I Lab 2 Credits
Prerequisites: NRSG 100 and NRSG 101. Corequisites: NRSG 102 and NRSG 105. Simulated patient care provides an opportunity to develop progressively complex nursing skills. Emphasis is placed on sterile technique, airway maintenance, nutritional and fluid support, elimination devices, specimen collection, medication administration, and drug dosage calculations.

NRSG 105 Medical-Surgical Nursing I Clinical 2 Credits
Prerequisites: NRSG 100 and NRSG 101. Corequisites: NRSG 102 and NRSG 103. Provides the opportunity to apply nursing skills in diverse patient care situations. Emphasizes assessment skills in determining patient health status. Applies knowledge of etiology, pathophysiology, diagnostic tests, and assessment findings to identify patient needs.

NRSG 106 Pharmacology for Nursing 3 Credits
Prerequisites: Admission to a Nursing Program or Program Chair Approval. Introduces the principles of pharmacotherapeutics, pharmacodynamics, and pharmacokinetics in relation to the major drug classifications. Utilizes the nursing process to explore pharmacologic aspects of patient care.

NRSG 108 Transition for the Paramedic to the Associate of Science in Nursing 5 Credits
Prerequisites: Admission to the Associate of Science of Nursing Program. Corequisites: NRSG 109. Examines the transition to the role of the registered nurse. Identifies components of the nursing program philosophy. Provides an overview of the five components of the nursing process, emphasizes the assessment component. Introduces data analysis and nursing diagnoses. Reviews etiology, pathophysiology, clinical manifestations, and the diagnostic testing of common alterations in health within the context of all body systems. Introduces mental health concepts and therapeutic communications/miCau management.

NRSG 109 Transition for the Paramedic to the Associate Science in Nursing Lab/Clinical 3 Credits
Prerequisites: Admission to a Nursing Program. Corequisites: NRSG 108. Provides the paramedic the opportunity to transition into the role of the associate degree nurse. Allows the opportunity to apply theoretical knowledge to provide ethical, culturally competent, and holistic care for adults experiencing non-complex alterations in health. Emphasis is placed on the prevention of illness and the maintenance, promotion and restoration of health, as well as the support of death with dignity and implementation of the ordered treatment plan. The nursing process provides the framework for problem solving and critical thinking in providing nursing care. Laboratory and clinical experiences are provided to assist the student in identifying appropriate nursing interventions for health needs.

NRSG 110 Medical Surgical Nursing II 3 Credits
Prerequisites: NRSG 102, NRSG 103, NRSG 105, and NRSG 106. Corequisites: NRSG 111. Provides an understanding of the health care needs of adults experiencing non-complex alterations in health within the context of all body systems. Examines the roles of the licensed practical nurse and the registered nurse in applying the nursing process and implementing the ordered plan of treatment.

NRSG 111 Medical Surgical Nursing II Clinical 2 Credits
Prerequisites: NRSG 102, NRSG 103, NRSG 105, and NRSG 106. Corequisites: NRSG 110. Allows the opportunity to apply theoretical knowledge to provide ethical, culturally competent, and holistic care for adults experiencing non-complex alterations in health. Emphasis is placed on the prevention of illness and the maintenance, promotion and restoration of health, as well as the support of death with dignity and implementation of the ordered treatment plan. The nursing process provides the framework for problem solving and critical thinking in providing nursing care.

NRSG 112 Maternal-Child Nursing 3 Credits
Prerequisites: NRSG 102, NRSG 103, NRSG 105, and NRSG 106.
NURSE: NRSG 113 Maternal-Child Nursing Clinical 2 Credits
Prerequisites: NRSG 102, NRSG 103, NRSG 105, and NRSG 106.
Corequisites: NRSG 112. Allows the opportunity to apply theoretical knowledge to provide ethical, culturally competent, and holistic care for children and childbearing families. Emphasis is placed on the prevention of illness and the maintenance, promotion and restoration of health, as well as the support of death with dignity and implementation of the overall plan of treatment. The nursing process provides the framework for problem solving and critical thinking in providing nursing care. Leadership activities for practical nurses in the long-term care setting are explored.

NRSG 120 Transition to Associate of Science
Nursing for the LPN 5 Credits
Prerequisites: Admission to the ASN Program. Corequisite: NRSG 106. Examines the role of the registered nurse. Identifies components of the nursing program philosophy. Reviews etiology, pathophysiology, clinical manifestations, and the diagnostic testing of common alterations in health within the context of all body systems. The nursing process will guide the student in analyzing the care of the adult and maternal child patients with noncomplex health disorders. Emphasis will be placed on assessment skills. Laboratory experience is provided to perform basic nursing skills and assist the student in identifying appropriate nursing responses to health needs.

NRSG 171 Math for Nurses 3 Credits
Prerequisites: Demonstrated competence through appropriate assessment of successful completion of MATH 050 or MATH 015 or MATH 023 with a C grade or better. This course introduces the student based on math exercises in nursing, or the student currently enrolled in a nursing curriculum, to the mathematics commonly used in this profession. It may also serve as a refresher course to the licensed nurse. Skills used to determine dosages are taught using the ratio/proportion method. Both oral and parenteral drug dosages are determined. Emphasis is placed on the safety and accuracy of dosage calculations, reading drug labels, measurements of various hypodermic syringes and reading/recording drug orders.

NRSG 200 Complex Medical-Surgical Nursing for the ASN 3 Credits
Prerequisites: Admission to the ASN Program, NRSG 110, NRSG 111, NRSG 112, and NRSG 113 or Admission to the ASN Program, NRSG 108, NRSG 109, NRSG 112, NRSG 113 and NRSG 106 or Admission to the ASN Program, NRSG 120 and NRSG 106. Corequisite: NRSG 201. Applies previous knowledge of the etiology and pathophysiology of complex alterations in health in understanding the patient's health care needs within the context of all body systems. Examines the role of the registered nurse in applying the nursing process and implementing the ordered plan of treatment in acute care settings. Examines leadership skills in a variety of healthcare settings.

NRSG 201 Complex Medical Surgical Nursing for the ASN Clinical 4 Credits
Prerequisites: Admission to the ASN Program, NRSG 110, NRSG 111, NRSG 112, and NRSG 113 or Admission to the ASN Program, NRSG 108, NRSG 109, NRSG 112, NRSG 113 and NRSG 106 or Admission to the ASN Program, NRSG 120 and NRSG 106. Corequisite: NRSG 200. Allows the opportunity to apply theoretical knowledge to provide ethical, culturally competent, and holistic care for adults experiencing complex alterations in health within the context of all body systems. Emphasis is placed on the prevention of illness and the maintenance, promotion and restoration of health, as well as the support of death with dignity and implementation of the ordered plan of treatment. The nursing process provides the framework for problem solving and critical thinking in providing nursing care. Leadership activities for practical nurses in the long-term care setting are explored.

NRSG 202 Nursing Care of the Complex Family 3 Credits
Prerequisites: Admission to the ASN Program, NRSG 110, NRSG 111, NRSG 112, and NRSG 113 or Admission to the ASN Program, NRSG 108, NRSG 109, NRSG 112, NRSG 113 and NRSG 106 or Admission to the ASN Program, NRSG 120 and NRSG 106. Corequisite: NRSG 203. Explores the theoretical concepts of growth and development, family nursing, and health promotion across the lifespan. Examines the role of the registered nurse in applying the nursing process and in implementing the ordered plan of treatment for families experiencing complex health problems. Identifies community health resources. Discusses the issues of obstetrical and high-risk neonatal emergencies, family violence, acute life threatening illnesses, and chronic debilitating illnesses. Analyzes the needs of the geriatric patient.

NRSG 203 Nursing Care of the Complex Family Clinical 2 Credits
Prerequisites: Admission to the ASN Program, NRSG 110, NRSG 111, NRSG 112, and NRSG 113 or Admission to the ASN Program, NRSG 108, NRSG 109, NRSG 112, NRSG 113, and NRSG 106 or Admission to the ASN Program, NRSG 120 and NRSG 106. Corequisite: NRSG 202. Allows the opportunity to apply theoretical knowledge to provide ethical, culturally competent, and holistic care with the focus on family coping and adaptation across the lifespan. Emphasis is placed on the prevention of illness and the maintenance, promotion, and restoration of health as well as the support of death with dignity, and implementation of the ordered plan of treatment for families experiencing complex health problems. The nursing process provides the framework for problem solving and critical thinking in providing nursing care.

NRSG 204 Psychiatric Nursing 2 Credits
Prerequisites: Admission to the ASN Program, NRSG 110, NRSG 111, NRSG 112, and NRSG 113 or Admission to the ASN Program, NRSG 108, NRSG 109, NRSG 112, NRSG 113, and NRSG 106. Corequisite: NRSG 205. Builds upon previous knowledge of mental health concepts to provide an understanding of psychiatric and behavioral disorders. Examines the role of the registered nurse in providing psychiatric care.
NRSG 205 Psychiatric Nursing Clinical 1 Credit
Prerequisites: Admission to the ASN Program, NRSG 110, NRSG 111, NRSG 112, and NRSG 113 or Admission to the ASN Program, NRSG 108, NRSG 109, NRSG 112, NRSG 113 and NRSG 106 or Admission to the ASN Program, NRSG 120 and NRSG 116. Corequisite: NRSG 204. Allows the opportunity to apply theoretical knowledge to provide ethical, culturally competent, and holistic care for individuals experiencing psychiatric and behavioral disorders. The nursing process provides the framework for problem solving and critical thinking in nursing care.

OFAD 009 Introduction to Keyboarding 3 Credits
Prerequisites: None. Introduces the use of the keyboard. Touch-typing skills, manual dexterity, and speed development are cultivated using computers.

OFAD 019 Keyboarding 3 Credits
Prerequisites: None. Provides students with the fundamentals of keyboarding using the touch method. Emphasizes mastery of the keyboard, development of formatting skills, and development of speed and accuracy on a personal computer using an up-to-date software package.

OFAD 029 Speed and Accuracy Development 1 Credit
Prerequisites: OFAD 019. Designed to diagnose individual keyboarding speed and accuracy skills and bring those skills to an employable level.

OFAD 103 Introduction to Computers with Word Processing 3 Credits
Prerequisites: Demonstrated competency of 35 gross words per minute on a three-minute timed writing with three or fewer errors or earning a grade of "C" or higher in OFAD 019. Offers hands-on experience in operation of a specific word processing software package.

OFAD 108 Shorthand/Notetaking I 3 Credits
Prerequisites: None. Introduces basic principles of a note-taking system. Emphasis is placed on note-taking techniques, legibility, and mastery of the basic vocabulary. Dictation and transcription of material is included.

OFAD 110 Presentation Graphics 3 Credits
Prerequisites: None. Provides hands-on experience and familiarizes students with specific advanced design and layout techniques and practical applications of business presentations.

OFAD 113 Medical Coding 3 Credits
Prerequisites: HLHS 101. Addresses basic CPT coding concept guidelines including learning to use documented information and basic ICD-9 coding guidelines including how to extract information from medical charts. (For campuses that do not have an MEAS program.)

OFAD 114 Desktop Publishing 3 Credits
Prerequisites: CINS 101 or OFAD 103. Emphasizes the production of publication quality documents. Attention is given to design and layout principles and production techniques. Fonts, graphics, and page composition are integrated into camera-ready documents using computer software and hardware.

OFAD 115 Computer Concepts for the Medical Office 3 Credits
Prerequisites: Program Advisor Approval. Familiarizes the student with computer applications in the health care setting. Designed to provide the student with basic operations and applications of computer usage within the health care provider office. Applies the use of a computerized account management software.

OFAD 116 Essentials of Business Correspondence 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 024 and ENGL 031. An intensive, competency-based business correspondence course that involves grammar, word usage, pronunciation, punctuation, proofreading, spelling, vocabulary building, and other language skills that are essential to good workplace communication.

OFAD 119 Document Processing 3 Credits
Prerequisites: Demonstrated competency of 35 gross words per minute on a three-minute timed writing with three or fewer errors or earning a grade of "C" or higher in OFAD 019. Emphasis is placed on increasing speed, improving accuracy, developing and applying formatting skills, applying communication and language arts skills, and developing document production techniques on a personal computer using an up-to-date word processing software package.

OFAD 121 Office Procedures and Team Dynamics 3 Credits
Prerequisites: Demonstrated competency of 35 gross words per minute on a three-minute timed writing with three or fewer errors or earning a grade of "C" or higher in OFAD 019. Prepares the student to understand and carry out responsibilities assigned in a business office. Topics include telephone techniques, office equipment, travel and conference arrangements, professional development, research techniques, time and stress management, and business ethics.

OFAD 130 Quality and Customer Service 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Examines and addresses issues of quality and customer service faced by organizations. Explores evolving philosophies, definition, development and application. Includes examination of current applications in administration.

OFAD 171 Topics in Presentation Graphics 3 Credits
Prerequisites: None. Provides hands-on experience and familiarizes students with specific advanced design and layout techniques and practical applications of business presentations.

OFAD 204 Microsoft Outlook 3 Credits
Prerequisites: None. Provides students with the ability to utilize email components. Topics include managing schedules, managing folders and contacts, organizing work using tasks and notes, and customizing and using advanced email features.

OFAD 207 Integrated Applications 3 Credits
Prerequisites: Demonstrates competency through appropriate assessment or successful completion of CINS 101. Explores the advanced features of an integrated office software package using word processing, spreadsheets, database, and presentation graphics.

OFAD 208 Shorthand/Notetaking II 3 Credits
Prerequisites: OFAD 108. Develops dictation, notetaking and transcription skills through drills and tests. Emphasizes speed, accuracy and use of correct English. Reinforces and builds on principles and skills learned in Shorthand/Notetaking I.

OFAD 211 Medical Transcription I 3 Credits
Prerequisites: HLHS 101 and OFAD 119 with an entry level speed of 40 WPM on a 5-minute timed writing with a 5 error limit. Develops skills and knowledge of medical transcription, utilizing medical reports, terminology, and correspondence.

OFAD 212 Medical Transcription II 3 Credits
Prerequisites: MEAS 135 or OFAD 211. Develops transcription skills using medical documents such as office chart notes, letters, initial office evaluations, history and physicals, consultations, emergency room reports, and discharge summaries for various medical specialties.

OFAD 213 Professional Medical Coding 3 Credits
Prerequisites: OFAD 113. Addresses advanced CPT coding concept guidelines including learning to use documented information and advanced ICD-9 coding guidelines including how to extract information from medical charts. Emphasis is given to medical coding in the course.

OFAD 214 Multimedia Design 3 Credits
Prerequisites: CINS 101 or OFAD 103. Create multimedia presentations for primary delivery via the Internet. Attention is given to design and layout principles and production techniques. Color and editing graphics and photographs will be introduced. Students will also apply their design skills to preparing documents for electronic.

**OFAD 215 Legal Transcription**  3 Credits
Prerequisites: OFAD 119, with an entry-level speed of 40 gross words a minute on a 5-minute timed writing with a five-error limit. Provides hands-on training in formatting legal correspondence and court documents in the basic areas of law. Students will learn specialized rules of punctuation, terminology, and standards for legal documents. In a laboratory setting, students will learn how to use a transcribing machine to produce legal documents from tape dictation.

**OFAD 216 Business Communications**  3 Credits
Prerequisites: ENGL 111. Emphasizes analysis of business communication environments-cultural, organizational, technological, international, and interpersonal—the use of communications standards to direct the choice of oral and written communication methods and techniques. It includes practice in writing a variety of messages used to communicate in business and industry with an emphasis on the potential impact of the message on the receiver as a basis for planning and delivering effective business communications.

**OFAD 217 Problem Solving for Computer Users**  3 Credits
Prerequisites: Program Advisor Approval. Introduces the organization, structure, and functions necessary for managing and maintaining information systems within a business organization. Presents the student with basic computer system concepts such as file and resource management, device drivers, file structures, hard disk organization, software installation, upgrading and maintenance, and fundamental data security techniques. These concepts will be incorporated into practical applications.

**OFAD 218 Spreadsheets**  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Provides an in-depth understanding of worksheet design, charting, what-if analysis, worksheet database creation and manipulation, and OLE. Knowledge and use of a spreadsheet will be applied to various business applications. Integration of spreadsheets in other applications will be addressed.

**OFAD 219 Advanced Document Processing**  3 Credits
Prerequisites: OFAD 119 or equivalent. Emphasis on high degree of competency in office-like environment processing documents on a personal computer using an up-to-date word processing software package.

**OFAD 220 Records and Database Management**  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Focuses on the management and control of documents from creation to disposition using manual, automated, and electronic media. Examines filing procedures, records management personnel, and equipment. Uses database software to create, modify, query, and report information from a database.

**OFAD 221 Organizational Leadership**  3 Credits
Prerequisites: OFAD 216 and Advisor Approval. Emphasizes management of office functions. Key topics include personnel, team building, ergonomics, project management, and leadership styles. Case studies and role-playing projects are included. Students will also complete the program and College outcomes assessment tools.

**OFAD 222 Database Applications**  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Provides "hands-on" experience and familiarizes students with the creation and management of a database.

**OFAD 226 Advanced Electronic Spreadsheets**  3 Credits
Prerequisites: OFAD 218 or Program Advisor Approval. Continues the study of electronic spreadsheets in business. Emphasizes the advanced application of electronic spreadsheets.

**OFAD 271 Adobe Illustrator©**  3 Credits
Prerequisite: Program Advisor Approval. Provides beginning/intermediate instruction in illustration techniques using computer software designed for creating illustrations, technical drawings, logos, and packaging. Emphasis on preparing effective, creative illustrations for various media applications in an efficient, productive manner.

**OFAD 272 Adobe Photoshop©**  3 Credits
Prerequisite: Program Advisor Approval. The course provides an introductory to intermediate look at Adobe Photoshop. The features and commands of this software will be discussed and explored in the context of preparing and manipulating graphics.

**OFAD 280 Co-op/Internship/Externship**  3 Credits
Prerequisites: Program Advisor Approval. Provides students with the opportunity to work for an organization specifically related to career objectives. Provides on-the-job experience while earning credit.

**OPMT 102 Techniques of Supervision**  3 Credits
Prerequisites: None. Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces basic employee development with emphasis on the responsibilities of a newly-appointed supervisor. Emphasizes organizational structure, motivation, delegation of authority, interviews, orientation and induction of new employees, employee performance evaluations and dealing with employee conflict.

**OPMT 205 Techniques of Leadership**  3 Credits
Prerequisites: OPMT 102. Identifies approaches to effective leadership and discovers an appropriate personal leadership style. Explores specific qualities and skills needed for conference leadership (organizing, facilitating, controlling, summarizing, speaking, and problem defining and solving).

**OPMT 211 Labor Relations**  3 Credits
Prerequisites: BUSN 101 and BUSN 202. This is a second-year elective course in labor-management relations. Examines labor history, major labor legislation, collective bargaining, grievance procedure, arbitration, wage issues and economic supplements e.g., "fringe benefits." Students will obtain the knowledge and skills necessary for functioning effectively in an organized—particularly an industrial—environment.

**OPMT 224 Operations Management**  3 Credits
Prerequisites: MATH 111 or higher. A study of the efficient production of goods and services that will satisfy the wants and needs of identified customer groups. The course begins with a more detailed description of what Operations Management is, then moves to an examination of the customer and methods for determining customer demand.

**ORTH 101 Introduction to Orthotics and Prosthetics**  3 Credits
Prerequisites: None. Focuses on the development of knowledge necessary to understand the rehabilitation process as it relates to the delivery of orthotic/prosthetic care. The prosthesis and orthotics professions are presented in terms of the integration of the biological, medical, and engineering sciences as well as the clinical and technical components of the disciplines. Students will develop a solid foundation of the principles and practice of orthotics and prosthetics and the materials and technology associated with the manufacture of custom devices.

**PARA 101 Introduction to Paralegal Studies**  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. A survey of the American legal system, substantively and procedurally, and the role of the paralegal in the legal profession. Topics include professional ethics, trial and appellate courts, civil and criminal procedure, constitutional law, and basic legal analysis. This entry-level course is a prerequisite for all other paralegal courses in the program.

**PARA 102 Legal Research**  3 Credits
Prerequisites: PARA 101. Introduces the student to legal research resources including cases, reporters, codes, codes and digests, statutes, and book manuals and form books. Instruction is also delivered on proper legal citation form, citation services, legal research strategy. Projects include a series of law library research projects that teaches the student the descriptive word method of research, basic legal analysis, and the structure of a
legal research memorandum of law. 20 hours of law library attendance required in this course.

PARA 103 Civil Procedure 3 Credits
Prerequisites: PARA 101. The first of two semesters devoted to the study of the Indiana Trial rules, small claims, court rules, and local rules. (The second course is PARA 202). Topics include filing requirements, the rules regarding service of process, and calculation of deadlines. Projects include drafting summonses, complaints, answers, and various motions.

PARA 106 Tort Law 3 Credits
Prerequisites: PARA 101. Concerns the law of non-criminal injuries to persons or property. Topics include negligence, strict liability, product liability, intentional torts, affirmative defenses, basic evidence law, and pre-trial investigation techniques and resources.

PARA 107 Contracts and Commercial Law 3 Credits
Prerequisites: PARA 101. Examines the nature of contracts and commercial law under both the common law and the Commercial Code of Indiana. Topics include contract for sales of goods (UCC Article 2), the Statute of Frauds, performance, remedies, warranties, assignment, and personal property security interests. This is an introductory course in real and personal property law for paralegal majors.

PARA 200 Legal Ethics 3 Credits
Prerequisites: PARA 101. Examines rules of professional conduct that apply to all legal professionals, including the American Bar Association Model Rules of Professional Conduct, the Indiana Rules of Professional Conduct, and the American Bar Association Guidelines for the Utilization of Legal Assistants, and various other set of rules of conduct created by paralegal associations.

PARA 202 Litigation 3 Credits
Prerequisites: PARA 101 and PARA 103. The study of Indiana trial rules pertaining to actual trial. Topics include discovery process and discovery tools, litigation support - including organization and retrieval of trial documents - techniques in preparing witnesses for trial, and preparing jury instructions. Main project is compiling a trial notebook.

PARA 203 Law Office Technology 3 Credits
Prerequisites: PARA 101. A hands-on survey of software support available to the law practitioner, including word processing, electronic spreadsheets, database management, presentation software, and computer-assisted research services. Also, includes information on computer-assisted legal research, web-based research, and electronic filing.

PARA 204 Legal Writing 3 Credits
Prerequisites: PARA 102 and PARA 103. Further develops the legal writing skills the students touched upon in Legal Research. The student will be exposed to various legal writing techniques that are used in drafting a wide variety of legal documents. Throughout the semester, a strong emphasis is placed on proper writing methodology and formatting. Projects include drafting research, correspondence, litigation and transactional documents.

PARA 205 Business Associations 3 Credits
Prerequisites: PARA 101. Provides an introduction to the various types of business entities, including sole proprietorships, general and limited partnerships, limited liability companies (LLCs), and business corporations. Topics include key concepts of law (the relationship between principals and agents), the scope of employment doctrine, and respondent superior, the distinguishing characteristics of common business entities, and the formal requirements for establishing and doing business in various types of business organizations in Indiana, respectively advantages and disadvantages of each type, and relevant tax issues. Students will review sample business formation documents and will draft a general partnership agreement.

PARA 206 Advanced Tort Law 3 Credits
Prerequisites: PARA 106. A continuation of the principles and issues discussed in Tort Law class, including res ipsa loquitur, attractive nuisance, premises liability and wrongful death. Litigation support and strategy will also be discussed.

PARA 209 Family Law 3 Credits
Prerequisites: PARA 103. An introduction to the Indiana law of marriage, dissolution, custody (including UCCJA), visitation, support (including URESA), adoption, and guardianship of minors. Students will review many pleadings and intake forms and will draft a divorce petition, a financial statement, a summary decree with child support worksheet.

PARA 210 Wills, Trusts, and Estates 3 Credits
Prerequisites: PARA 101. Concerns the law of wills and trusts, the administration of estates, and guardianships according to Indiana common law and the provisions of Titles 29, 30 and Title 6 (death taxes) of the Indiana Code. Students study the intestate succession, the elements of a valid will, of a valid trust, and laws of will construction.

PARA 212 Bankruptcy Law 3 Credits
Prerequisites: PARA 101. A survey of the Federal Bankruptcy Act, including the various bankruptcy proceedings. There under emphasizes how to accumulate the debtor's financial information, complete initial schedules, prepare the list of creditors, and organize data for the first meeting of creditors, complete proofs of claim, and prepare creditors' claims. Including preparation of a Chapter 13 bankruptcy case.

PARA 255 Practicum 3 Credits
Prerequisites: Program Advisor Approval. An opportunity for the intermediate paralegal student to acquire valuable field experience by working under attorney supervision. The student keeps a journal and prepares a report of his or her experience at the end of the semester.

PARA 271 Medical Malpractice 3 Credits
Prerequisites: PARA 101. The student shall receive instruction in the elements of medical malpractice and how this differs from intentional tort and negligence claims. The course also concentrates on instruction on ethical and criminal violations that sometimes occur in the medical field. The student shall also receive instruction on the intricacies of Indiana law, including an analysis of the Indiana Medical Malpractice Act. The course will also cover the defenses available to defendants of medical malpractice claims.

PARA 280 Internship 3 Credits
Prerequisites: Program Advisor Approval. An opportunity for intermediate paralegal student to acquire valuable field experience by working under attorney supervision. The student keeps a journal and prepares a report of his or her experience at the end of the semester.

PARM 102 Emergency Medical Technician - Basic Training 7.5 Credits
Prerequisites: Completion of the ASSET or COMPASS, 18 years of age prior to course completion, copy of high school diploma or GED must be supplied by course completion, completion of the College Health Examination Form and required vaccinations and tests, regionally determined, current Health Care Provider CPR card. Based on the training program developed by the Department of Transportation and the Emergency Medical Services Commission of Indiana, covers theories, techniques and operational aspects of pre-hospital emergency care within the scope and responsibility of the basic emergency medical technician (EMT-B). Requires laboratory practice and clinical observation in a hospital emergency room and ambulance. Successful completion of the course meets Indiana requirements to test for certification as an EMT-B.

PARM 105 Basic Ambulance Internship 2 Credits
Prerequisites: PARM 102. Students will participate in a field internship that provides on the job experience in all phases of pre-hospital
basic life support. All skills tested by the National Registry Exam will be formally reviewed and practiced. A general review of the total EMT-Basic curriculum will be presented. The student's practical skills experienced through PARM 102 and this course must demonstrate competency in the objectives listed as required by the National Standard Curriculum, DOT, 1998.

PARM 111 Preparatory 3 Credits
Prerequisites: APHY 101, certification, or pending, as an EMT - B, course application and physical exam on file, completion of the College Health Examination Form and regionally required immunizations and tests, successful completion of entrance requirements as determined by regional affiliations. The legal, moral and ethical responsibilities of the health care professional are introduced. An overview of the Emergency Medical Services System and its components and their relationships is presented. The essential principles of the standard of care, medical liability, areas of potential medical liability and medical liability protection are introduced. An overview of stress, reactions to stress, anxiety, paramedic job stress and dealing with death and dying is discussed. The essentials of pathophysiology and how the understanding of disease processes will improve upon the level of care provided by the paramedic are explained.

PARM 112 Prehospital Pharmacology 3 Credits
Prerequisites: PARM 111. The introduction of drug information, action of drugs, weights and measures and the administration and techniques of administering drugs. The essentials of venous access, therapeutic communications and lifespan development are also included.

PARM 115 Airway, Patient Assessment 3.5 Credits
Prerequisites: PARM 112. The fundamentals of airway management including airway anatomy and physiology, assessment, management, ventilation, and suction are emphasized. General patient assessment, initial management, including scene survey, initial assessment, resuscitation, focused/detailed exam, history, definitive field management, and re-evaluation are also introduced.

PARM 116 Clinical Application I 1.5 Credits
Prerequisites: PARM 112. Provides experiences in a hospital environment or other medical setting under supervision. Provides the opportunity to practice and perform patient assessment, endotracheal intubation, intravenous access techniques, and therapeutic communication techniques in the emergency department, surgery, and other appropriate clinical areas.

PARM 200 Trauma 3 Credits
Prerequisites: PARM 115. An overview of kinematics, primary survey, resuscitation, secondary survey and management, monitoring and transporting trauma victims. The pathophysiology of shock, care of shock and victim oxygenation are covered. It defines parameters and discusses anatomy and physiology as related to burn injury, presents pathophysiology related to a specific source of burn injury and presents patient-related detail assessment and specific management of burns. Basic Trauma Life Support (BTLS) certification must be earned during this course.

PARM 210 Medical I 6 Credits
Prerequisites: PARM 200. Pulmonology, respiratory management and pharmacological interventions are covered in detail. Cardiology and dysrhythmia recognition relative to pre-hospital intervention are emphasized. Advanced Cardiac Life Support (ACLS) certification must be earned during this course.

PARM 213 Medical II 5 Credits
Prerequisites: PARM 210 and APHY 102. Etiology and treatment of medical emergencies associated with the nervous, endocrine and reproductive systems are reviewed. The course includes presentation of allergies and anaphylaxis, gastroenterology, toxicology, infectious and communicable diseases, environmental conditions and behavioral and psychiatric disorder.

PARM 215 Special Considerations 3.5 Credits
Prerequisites: PARM 213. Pediatrics, geriatrics and interventions for the chronic care patient and assessment based management are covered. Neonatal Resuscitation Provider (NRP) certification and Pediatrics Advanced Life Support (PALS) certification must be earned during this class.

PARM 216 Clinical Applications II 1.5 Credits
Prerequisites: PARM 116. Provides experiences in a hospital environment or other medical setting under supervision. Provides the opportunity to practice and perform patient assessment, endotracheal intubation, suctioning of upper and lower airway, delivery of aerosolized medications, administration of medications via various enteral and parenteral routes, intravenous access techniques, interpretation of electrocardiogram tracings, and therapeutic communication techniques in the emergency department, critical care units, behavioral units, and other appropriate clinical areas.

PARM 219 Clinical Applications III 1.5 Credits
Prerequisites: PARM 216. Provides experiences in a hospital environment or other medical setting under supervision. The emphasis is on gaining experience in the management of neonatal, pediatric, and obstetric patients. Provides opportunities to practice assessment, communication and management with patients ranging from neonate to young adult and opportunities to observe live births and perform assessment of obstetric patients are also available. Assessing the critically ill patient and assisting with care in specialty intensive care units and the burn unit is included.

PARM 220 Operations 2.5 Credits
Prerequisites: PARM 213. An awareness of the concepts of rescue and the preparation for a response to a scene/incident is provided. The essentials of crime scene awareness, medical incident command and hazardous materials operations are presented. This is the capstone course of the paramedic curriculum.

PARM 221 Ambulance Internship 6 Credits
Prerequisites: PARM 219. Students will participate in a field internship that provides on the job experience in all phases of prehospital advanced life support. All skills tested by the National Registry Exam will be formally reviewed and practiced. A general review of the total paramedic curriculum will be presented. Student's practical skills experienced through Clinical I, Clinical II, Clinical III, and this course must demonstrate competency in the objectives listed as required by the National Standard Curriculum, DOT, 1998.

PARM 225 Indiana Primary Instructor Preparation 3 Credits
Prerequisites: Copy of high school diploma or GED must be supplied by course completion; completed Training Institution Approval Form; letter(s) documenting minimum of at least one year of experience in the delivery of emergency medical care in the prehospital setting; copy of Indiana certification as EMT-B or higher (certification period must be one year or more); pass EMT-B written and practical skills with the appropriate score. This course is based on the training program developed by the Department of Transportation and the Emergency Medical Services Commission of Indiana. It covers theories, teaching techniques and research aspects of teaching prehospital emergency care program at basic emergency medical technician (EMT-B) level. Is the certification required by the state of Indiana for an individual wishing to teach at the EMT-B level.

PHAR 101 Pharmacy Technician I 3 Credits
Prerequisites: HLHS 101 and demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 015 or MATH 023 or MATH 050. Corequisites: PHAR 201. Introduces basic skills and information needed for a career as a Pharmacy Technician in the state of Indiana.

PHAR 201 Pharmacy Technician II 3 Credits
Corequisites: PHAR 101. Theory is applied through performance of competency levels of the technical pharmacy task including: properly preparing, documenting and processing prescriptions according to pharmacy policy and regulations; preparation of intravenous and special solutions; proper preparation and maintenance of records appropriate to the pharmacy, including quality control records, controlled substances (narcotic drug distribution), prescription data and records; application of basic principles of microbiology; aseptic techniques; and the operation and maintenance of the laminar hood. The student will utilize proper communication skills (both written and verbal). Identification and adherence to check points will be emphasized. Current national and Indiana law and administrative
PHAR 202 Pharmacy Technician Experiential Seminar 3 Credits
Prerequisites: Program Advisor Approval. Provides the opportunity to observe, discuss, and perform various pharmacy-related procedures under supervision, with learning experiences obtained in selected retail pharmacies and/or hospitals. Prepares students for national certification examination.

PHIL 101 Introduction to Philosophy 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces the student to recurring ideas and thought systems represented in the literature and lives of great thinkers and examines philosophical principles such as foundations of morality, skepticism, the nature of knowledge, the nature of mind, free will and determinism, and the existence of God. Emphasizes the evaluation of arguments and analysis of concepts.

PHIL 102 Introduction to Ethics 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces the student to the ethical domain as a field of philosophy by examining major concepts such as happiness, virtues and rules and applies them to practical moral problems.

PHIL 213 Logic 3 Credits
Prerequisites: ENGL 111. Introduces the student to logic as a field of philosophy by examining the structure of argument and applying critical thinking skills.

PHIL 220 Philosophy of Religion 3 Credits
Prerequisites: ENGL 111. Analyzes issues basic to understanding religion, including the problem of evil, free will and divine foreknowledge, arguments for the existence of God, relationship of faith and reason, and arguments for personal immortality.

PHLB 212 Phlebotomy 3 Credits
Prerequisites: HLHS 101 and Program Chair Approval. Presents the principles and practices of laboratory specimen collection and processing. Also covers medical terminology, infection control, patient identification, anatomy and physiology, anticoagulants, blood collection, specimen processing and interpersonal skills.

PHLB 257 Phlebotomy Externship 3 Credits
Prerequisites: PHLB 212 and Professional CPR/AED certification and Program Chair Approval. Provides the opportunity to discuss and perform phlebotomy procedures under supervision with learning experiences obtained in selected laboratories, physician offices, clinics, or hospitals.

PHOT 100 Photography for Non-Majors 3 Credits
Prerequisites: None. Covers basic black and white photographic theory and technique. Includes basic black and white darkroom processes and physics of light and filters. Studies camera and lenses, characteristics of films and papers, and the chemistry of emulsions, exposure, and development.

PHOT 104 Basic Photography 3 Credits
Prerequisites: None. Covers basic photographic theory and technique. Includes image capture, processing, various output methods and physics of light. Study of cameras, lenses, exposure, characteristics of photographic media and output. Appropriate presentation, software options, and sequencing of imagery are stressed, with historical examples that provide background for understanding the medium.

PHOT 106 Studio Practices 3 Credits
Prerequisites: None. Introduces to studio photography using continuous light sources. Basic setup techniques and lighting methods for a variety of subject matter. Practice with photoflood lamps and quartz lamps, both floods and spots, and a variety of equipment used to modify light.

PHOT 109 Studio Lighting Techniques 3 Credits
Prerequisites: PHOT 106 and VISC 115. Further explores multiple lighting set-ups, studio electronic flash, location lighting, and special effects. Emphasis will be put on conceptualizing the photograph from start to finish.

PHOT 122 Digital Photography 3 Credits
Prerequisites: None. Introduces students to digital imaging techniques in photography. Digital imaging software will be used as a tool to manipulate photographs and scanned imagery. Provides experience with digital studio setting. Provides experience with the digital darkroom environment including editing processes, manipulation of images and working with various output devices.

PHOT 201 Principles of Color Photography 3 Credits
Prerequisites: PHOT 104 and VISC 102. Develops color photographic skills using current equipment and techniques. Encompasses color psychology and aesthetics as well as the physics of light in color photography. Color photographic theory will be emphasized. Appropriate presentation, software options, and sequencing of imagery are stressed, with historical examples that provide background for understanding the medium.

PHOT 203 Professional Portraiture 3 Credits
Prerequisites: PHOT 109, PHOT 201 and VISC 101. Explores approaches and methods in traditional and alternative portraiture in studio and on-location photography. Emphasizes creative approaches to commercial portraiture as well as lighting and posing for corrective portraiture.

PHOT 204 Commercial Photography Techniques 3 Credits
Prerequisites: PHOT 109. Introduces more advanced studio and lab techniques used in advertising and industrial photography. Emphasizes creative problem solving applications toward advanced commercial photographic assignments.

PHOT 208 Independent Study I 3 Credits
Prerequisites: PHOT 104 and PHOT 106. Provides advanced students with opportunities to research and design projects for specified areas of interest. Requires the project plan to be approved by the instructor. Restricts work to student program area and requires it to be portfolio quality.

PHOT 214 Journalistic and Editorial Photography 3 Credits
Prerequisites: PHOT 104. Gives students the opportunity to photograph events and human interest features to gain experience in contributions to various publications. Emphasizes establishing visual relationships in the photo essay.

PHOT 216 Advanced Processes and Production Techniques 3 Credits
Prerequisites: PHOT 107, PHOT 201, VISC 101 and VISC 201. Introduces specialized lab/alternative process techniques in traditional and digital formats. Works with contemporary experimental darkroom and digital techniques. Covers issues in prepress production as they relate to the photographer.

PHOT 218 Fine Art Photography 3 Credits
Prerequisites: PHOT 104. Examines current issues in non-commercial photography. Explores attitudes of photographers and critics on a wide range of topics through directed reading, class discussion, and gallery visits. Appropriate presentation, software options, and sequencing of imagery are stressed, with historical examples that provide background for understanding the medium.

PHYS 100 Technical Physics 4 Credits
Prerequisites: Successful completion of MATH 111 or demonstrated...
competency through appropriate assessment or a grade of "C" or better in MATH 035 or MATH 043. Introduces the concepts and applications of physics. Leads students to develop an integrated understanding of the theory and applications of measuring (or unit) systems, scales, vectors, force, work, rate, energy, momentum, power, force transformers (simple machines), vibrations and waves, and time constants. Emphasizes understanding concepts, factual knowledge, computation, and application.

**PHYS 101 Physics I**  Transfer IN 4 Credits  
Prerequisites: MATH 121 or MATH 131, or MATH 134 or MATH 137. Introduces the basic concepts of mechanics, including force and torque, linear and rotational motion, work, energy and power, fluids, and the physics of heat. Includes lab.

**PHYS 102 Physics II**  Transfer IN 4 Credits  
Prerequisites: PHYS 101. Introduces the physics of light, periodic and wave motion, electricity and magnetism, and concepts of modern and current physics. Includes lab.

**PHYS 220 Mechanics**  Transfer IN 5 Credits  
Prerequisites: MATH 211. A calculus-based physics course that provides a detailed analysis of uniform and accelerated motion; Newton's laws; gravitation and planetary motion; energy, momentum, conservation principles; circular motion; angular momentum; dynamics of rotation; statics; hydrostatics and hydrodynamics; simple harmonic motion and wave motion. Includes lab.

**PHYS 221 Heat, Electricity and Optics**  Transfer IN 5 Credits  
Prerequisites: PHYS 220 and MATH 212. A calculus-based physics course that provides a detailed analysis of heat and energy, kinetic theory, elementary thermodynamics, heat transfer, electrostatics, electric current, AC and DC circuit analysis, electromagnetic; magnetic properties of matter; geometrical and physical optics. Includes lab.

**PLAS 101 Introduction to Plastics**  3 Credits  
Prerequisites: None. Introduction to the main plastic processing industries, techniques, and commonly used polymers.

**PLAS 106 Plastic Materials and Testing**  3 Credits  
Prerequisites: PLAS 101. Introduces structure, properties, and processing characteristics of plastic polymers and additives.

**PLAS 107 Injection Molding**  3 Credits  
Prerequisites: PLAS 101. Expands the student's knowledge of injection molding process, components, and industry.

**PLAS 108 Extrusion Process**  3 Credits  
Prerequisites: PLAS 101. Introduces the extrusion processes, equipment, and industrial applications.

**PLAS 201 Advanced Injection Molding**  3 Credits  
Prerequisites: PLAS 107. Covers the procedures and techniques necessary to fully utilize the capabilities of modern injection molding equipment to properly process thermoplastic materials.

**PLAS 202 Advanced Extrusion**  3 Credits  
Prerequisites: PLAS 108. Expands the student's knowledge of extrusion processes, equipment and industrial applications.

**PLAS 208 Computer Applications in Plastics**  3 Credits  
Prerequisites: PLAS 107 and PLAS 108. Introduces the computer products and services available to aid in the design and manufacturing of plastic products.

**PLAS 209 Manufacturing of Plastics Products**  3 Credits  
Prerequisites: PLAS 107 and PLAS 108. Covers the economic, organizational, and quality control strategies employed by production technicians to maximize efficiency in plastics manufacturing operations.

**POLS 101 Introduction to American Government and Politics**  Transfer IN 3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Studies federalism, theories of the origins and purposes of government and other aspects of the American government including interest groups, political parties, and the electoral process. Emphasis is placed on constitutional backgrounds and the organization and functions of the executive, legislative, and judicial segments of the national government, civil liberties and civil rights, public opinion, media, bureaucracies, and domestic and foreign policy.

**POLS 112 State and Local Government**  3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Covers the basic organization and operation of state and local governments. Topics include federalism, state constitutions, courts, governors, legislatures, elections, campaign finance, interest groups, local governments, budgets and taxes, education and law enforcement.

**POLS 201 Introduction to Political Science**  Transfer IN 3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Introduces students to the basic principles of political science, government and its institutions, international relations, political philosophy, and political theory. Emphasis on the impact of economy, culture, history, and environment on political behavior/events.

**POLS 210 Personal Law**  3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Examines the basic principles of our legal system, how legal decisions are made and how they affect citizens' lives. Topics to be covered include federal and state jurisdictions, criminal and civil law and procedures, freedom of speech, press and religion, privacy rights, workplace rights, property rights, the role of juries in our legal system and the death penalty.

**POLS 211 Introduction to World Politics**  Transfer IN 3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Focuses on bureaucracy in the federal government and its relation to local and state agencies.

**PPTC 101 Power Plant Fundamentals**  3 Credits  
Prerequisites: None. An introduction to power plant systems. Emphasizes the use of schematics and diagrams in discussing power plant systems and identifying major components including boilers, turbines, generators, condensers, pumps, and auxiliary equipment. Includes the study of pre-heaters, feed water, superheat, and reheating systems. Plant safety training and workplace procedures emphasized.

**PPTC 102 Power Plant Mechanical Equipment**  3 Credits  
Prerequisites: None. Introduces the various pieces of mechanical equipment found in power plants including compressors, pumps, fans, blowers, valves, heat exchangers, power transmission equipment, and turbines. Mechanical concepts of work, force, and torque will be used to describe equipment operation and performance. Studies basic types of bearings, seals, and lubrication used in power plant equipment. Mechanical assembly drawings and diagrams will be utilized to understand equipment operation and function.

**PPTC 103 Power Plant Electrical Equipment**  3 Credits  
Prerequisite: IND'T 113. Introduces the study of electrical equipment and systems used in power plants. Topics include three phase power, generators, motors, transformers, and switching gear. NEC and NESC Code requirements, automatic and manual motor controls, variable speed drives, and circuit protection will also be studied.

**PPTC 121 Power Plant Steam Systems**  3 Credits  
Prerequisite: PPTC 101 and demonstrated competency through appropriate assessment or a grade of "C" or better in MATH 044 or MATH 015. Studies the use of steam as a means of transferring energy and doing work. It will include principles of boiler operation to produce steam and the use of thermodynamics to understand the behavior and properties of a steam system. Major components will be studied along with how they play a role in the steam generation.
process. The class will include steam safety with principles of maintenance for use in troubleshooting and maintaining.

**PPTC 201 Power Plant Instrumentation and Control**  
3 Credits  
Prerequisites: INDT 113 and PPTC 101. Introduces the basic principles of process instrumentation and control systems. It includes measurement parameters such as flow, pressure, level, temperature, and pH. Studies the use of programmable logic controllers, process controllers, and distributed control systems that are interfaced with sensors and actuators to maintain process stability.

**PPTC 210 Gas Turbines**  
3 Credits  
Prerequisites: PPTC 101. Introduces the student to combined-cycle gas and steam turbine power plants. It includes information on system layout, controls, operation, and maintenance.

**PPTC 221 Advanced Power Plant Systems**  
3 Credits  
Prerequisites: PPTC 101 and PPTC 201. Examines online boiler control concepts, including combustion, feed water, header pressure, oxygen content, power demand, and other processes as applied to industrial power generation and process heat supply. Studies power plant cycles, thermodynamic properties of water, and steam. Also examines pollution control systems, gas turbine, and diesel generators.

**PSAF 115 Hazmat Awareness and Operations**  
3 Credits  
Prerequisites: None. Introduces hazardous materials for 1st responders. Topics include: hazardous materials definitions, regulations, statistics, properties and hazards; hazardous materials identification; incident management priorities; strategic goals and tactical objectives; personal protective equipment; contamination and decontamination; incident-specific strategies and tactics; terrorists and other criminal activities.

**PSAF 117 Hazardous Materials Technician**  
4 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning grade of "C" or better in ENGL 032 and MATH 040. Introduces hazardous material, managing the hazardous material incident, explosive and gas emergencies, shipping containers, cylinder safety devices, responding to flammable and combustible liquids, oxidizer, poison, and corrosive and radioactive emergencies. This course emphasizes chemical identification, marking, storage, shipping and handling of hazardous substances, and uses basic monitoring instruments for hazardous areas to protect workers and first responders. Covers protective clothing and equipment. Emphasizes safety procedures and practices. Detailed labs are included. On completion of this course the student is eligible to take the National test certification for Hazardous Materials Technician.

**PSAF 120 First Responder**  
3 Credits  
Prerequisites: None. Provides students with information necessary to recognize emergency situations; know the proper course of action with different types of emergencies and apply appropriate first aid. Addresses handling of victims of hazardous materials accidents. Covers CPR (Red Cross Professional with AED or American Heart Association Health Care Provider), including one and two rescuer, and adult, infant and child resuscitation.

**PSAF 121 Risk Management**  
3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 032 and MATH 040. This course provides the student with an introduction to industrial safety, OSHA, various OSHA standards, workplace inspections, citations and penalties. Employee and employer responsibilities, right-to-know laws and safety awareness programs are examined. Safety motivation and knowledge, creating a healthy work environment and health and safety issues and areas are also studied. Areas such as the role of the supervisor, employee assistance programs, management of stress helps students understand the role employers play in creating a healthy workforce. In addition, the contributions of safety committees and other governmental agencies responsible for safety are examined.

**PSAF 220 Incident Management System**  
3 Credits  
Prerequisites: Program advisor approval. This class will emphasize command and control of major department operations at an advanced level, linking operations and safety. Areas of study include: National Incident Management System (NIMS), Pre-Incident, Size-up, command systems, Division and Group Functions, Staging, Safety Officer, Command Post, Communications, News Media, Computer Aided Resources.

**PSAF 222 Computer Applications in Public Safety**  
3 Credits  
Prerequisite: TECH 104. Focuses on the needs and uses of the computer in public safety. Includes computer-aided dispatch, computer-aided design of equipment, computer generation of incident reports fire and EMS, application of computers for administrative processes, resource management, maintenance, test records for vehicles and equipment and future uses of computers in public safety.

**PSAF 271 Field Studies in Fire Science and Environmental Impact**  
2 Credits  
Prerequisite: Advisor Approval. This is an applied field studies course related to fire disasters, environmental impact and public administration and may include environmental health and safety and hazardous materials issues. Content will vary according to the specific field study opportunity, and student must seek regional advisor approval to use as credits toward program completion. Student will travel to federally protected wilderness post-burn areas to study environmental impact, to utilize knowledge of federal, state, and local law as applied to wild land protected areas, residential and local municipalities (before and after fires), study the application of NIMS, utilize field appropriate equipment and technology in research and photography, and perform water and soil analysis. Students are required to attend two training days of wilderness information and skills training relating to camping, portaging, canoeing, and hiking) prior to the trip. Service learning projects may be included during the field studies.

**PSAF 279 Public Safety Capstone Course**  
1 Credit  
Prerequisite: Program Advisor Approval. Prepare the student for entry into Public Safety careers related to academic concentrations of public administration, hazardous materials, environmental health and safety management or fire science. Reviews procedures for interviewing, team participation, and ethical and productive job performance. Provides for taking program outcomes assessments and portfolio development.

**PSYC 101 Introduction to Psychology**  
Transfer IN 3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning grade of "C" or better in ENGL 025 and ENGL 032, and MATH 044 or MATH 015. Surveys behavior and cognitive processes as they affect the individual. The course focuses on biological foundations, learning processes, research methodologies, personality, human development and abnormal and social psychology.

**PSYC 102 Advanced Introduction to Psychology**  
3 Credits  
Prerequisites: PSYC 101. Continuation of PSYC 101. Addresses advanced topics regarding the methods, data, and theoretical interpretations in the areas of learning, sensory psychology, and psychophysics. Presents specific theoretical issues, research methods, and findings in the areas of developmental, social, personality, and abnormal psychology.

**PSYC 201 Lifespan Development**  
Transfer IN 3 Credits  
Prerequisites: PSYC 101 and ENGL 111. Examines human growth and development through the prenatal, child, adolescent, and adult stages of life. Physiological, emotional, psychosocial, and cognitive influences from conception to death will be addressed.

**PSYC 205 Abnormal Psychology**  
Transfer IN 3 Credits  
Prerequisites: PSYC 101 and ENGL 111. Examines theories and research related to abnormal behavior with primary emphasis on symptoms, etiology, and treatment of psychological disorders.

**PSYC 210 Drugs and Human Behavior**  
3 Credits  
Prerequisites: PSYC 101 and ENGL 111. Examines theories and research related to human drug use and abuse. Drug pharmacology; physiological effects of drugs on the nervous system; social and psychological issues affecting drug abuse; the treatment; effects; pre-
vention of substance abuse; and therapeutic uses of drugs in mental illness addressed.

PSYC 211 Research Methods in Psychology  3 Credits
Prerequisites: PSYC 101 and demonstrated competency through appropriate placement or earning a grade of "C" or better in MATH 050 or MATH 015 or MATH 023. The course will familiarize students with the basic concepts, techniques, and problems associated with conducting research in psychology. Students will be provided with the analytical and critical thinking skills required to design, conduct, and interpret empirical research. Problems specific to research in psychology will be explored.

PSYC 240 Human Sexuality  Transfer IN 3 Credits
Prerequisites: PSYC 101. Considers sexuality from an historic, scientific, evolutionary, and psychosocial perspective including sex research and methods, the biological bases of sexuality, sexual behavior, sexuality and the life cycle, sexual problems, and sexual issues.

PSYC 242 Educational Psychology  3 Credits
Prerequisites: ENGL 111 and PSYC 101. Designed for students interested in the educational process at all levels. Includes both topics related to student motivation, assessment and achievement. Successful students will understand the importance of the application of knowledge, as well as the acquisition of knowledge. The course provides a basic understanding of the psychology of teaching and education. Problem solving in the educational setting will be stressed.

PSYC 253 Introduction to Social Psychology  Transfer IN 3 Credits
Prerequisites: PSYC 101 and SOCI 111. The study of social psychology as a science, and how social psychologists study the interactions within and between individuals, social groups and institutions. This course crosslists with SOCI 253.

PSYC 260 Health Psychology  3 Credits
Prerequisites: PSYC 101. An introduction to health and emphasizing mind-body issues, the biopsychosocial model and cognitive behavioral theory. The course will emphasize research methods and current practice related to stress and pain, as well as health related behaviors. Within the course, treatment approaches, behavioral risk factors and public health issues will be addressed.

PTAS 101 Introduction to the Physical Therapist Assistant  3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 044 or MATH 015. Explores the history and concepts of physical therapy, physical therapist assisting and rehabilitative medicine. Introduces fundamentals of patient care including universal precautions; body substance isolation; OSHA guidelines; patient assessment including vital signs; body mechanics; and patient handling with applications of physics principles. Includes preparation of patients, treatment areas and equipment.

PTAS 102 Diseases, Trauma and Terminology  3 Credits
Prerequisites: PTAS 101. Explores diseases and trauma which necessitate physical therapy for the client. Medical terminology, anatomy, physiology, psychology, disabilities and physics related to these conditions are discussed along with instrumentation, implants and fixation devices. Provides students with the opportunity to explore their own reactions to illness and disability and to discuss how to recognize patients' and families' reactions to illness and disability.

PTAS 103 Administrative Aspects of Physical Therapist Assisting  3 Credits
Prerequisites: PTAS 101. Addresses the legal and ethical aspects of physical therapist assisting and patient care along with charting, documentation, report writing, patient history procurement, record keeping, charges, insurance information including diagnostic and procedure coding, third party reimbursement, Medicare, Medicaid, electronic claims and patient rights including American Disabilities Act policy and architectural barriers identification. Discusses current issues in health care provision. Explores patient, family, and professional communication techniques, body language and electronic communication as well as techniques in patient teaching. Includes performing within limitations of scope of skills, basic principles of levels of authority and responsibility, planning, time management, supervisory process, performance evaluations, policies and procedures.

PTAS 106 PTA Treatment Modalities I  5 Credits
Prerequisites: PTAS 101 and APHY 101. Continues concentration on the fundamentals of patient care including universal precautions, assessment of vital signs, body mechanics and patient positioning. Includes lectures, demonstrations and simulated patient problems in the laboratory portion of the course. Studies new techniques in depth, such as gait training, gait device selection, goniometry range of motion exercises and measuring. Introduces various modalities including hydrotherapy, thermo-therapy, massage, traction and intermittent compression techniques. Safety factors are emphasized in both the lectures and the laboratories. The laboratory provides the setting for the practice and implementation of theories and techniques of PTAS 106. Students practice assessments and treatment methods on themselves and one another under the guidance and supervision of the laboratory instructor.

PTAS 107 Kinesiology  5 Credits
Prerequisites: PTAS 101 and APHY 101. Introduces the physical therapist assistant student to the science of kinesiology. By definition, kinesiology is the study of movement. Studies human movement and brings together the fields of anatomy, physiology, physics and geometry. Prerequisite knowledge of skeletal and muscular anatomy and physiology is necessary. Class will consist of equal parts of lectures, demonstration and student participation in locating, observing and palpating various bony prominences and musculature. Much of kinesiology requires independent study to memorize origin, insertion, action and innervation of all muscles. The knowledge gained in this course is an integral part of the student's background preparation for the practice of physical therapy.

PTAS 115 Clinical I  2.5 Credits
Prerequisites: PTAS 102, PTAS 103, PTAS 106 and Program Advisor Approval. Requires the student to perform in a clinical environment with patients using applications of theory and techniques of PTAS 106, under the guidance of a registered physical therapist.

PTAS 205 Clinical II  6 Credits
Prerequisites: PTAS 115, PTAS 207, PTAS 217 and Program Advisor Approval. Requires the student to perform in a clinical environment with patients using applications of theory and techniques of PTAS 207 under the guidance of a registered physical therapist.

PTAS 207 Treatment Modalities II  5 Credits
Prerequisites: PTAS 106 and PTAS 107. Reviews joint structure, muscle origins, insertions, innervations, actions and physiology. Covers normal and abnormal gait, orthotics and prostheses, arthritis and joint replacement and postural correcting exercise along with treatment principles and therapeutic exercises for the neck, back and peripheral joints. Discusses general exercise principles and progression of the orthopedic patient through an exercise program. Addresses appropriate applications of principles of physics and kinesiology.

PTAS 215 Clinical III  6 Credits
Prerequisites: PTAS 205 and Program Advisor Approval. Requires the student to perform in a clinical environment with patients using applications of theory and techniques of PTAS 217 under guidance of a registered physical therapist.

PTAS 217 Treatment Modalities III  5 Credits
Prerequisites: PTAS 106. Provides an in-depth approach to therapeutic exercise as performed by the physical therapy assistant. Covers basic anatomy and physiology of the central and peripheral nervous systems and activities of daily living. Includes exercise physiology and neurophysiology and advanced principles and procedures of therapeutic exercise appropriate for cardiopulmonary, cardiovascular, orthopedic and neurologic conditions, stroke, spinal cord and peripheral nerve injuries. Discusses prevention measures, specialized techniques and the utilization of specialized therapeutic equipment and correlates them to exercise applications. Addresses appropriate applications of kinesiology and principles of physics. Provides practice and implementation of theories and techniques of PTAS 106 and PTAS 207 in the lab setting.
QUAL 201 Advanced Statistical Process Control 3 Credits
Prerequisites: QUAL 101. Builds on the basic principles of QUAL 101 with advanced techniques by industry to ensure economic production of goods based on defect prevention rather than defect detection. Covers the various decisions to modify, change or adjust the process based on statistical evidence. Stresses interpretation of statistical data and distinguishing between common and special causes of problems. Emphasizes appropriate use of control chart, trend analysis, assessing process and machine capability, evaluating the measurement process, using computers, and implementation techniques.

QUAL 202 Quality Control Concepts and Techniques II 3 Credits
Prerequisites: QUAL 101. Acquaints students with quality control systems. Emphasizes the systems approach to quality, establishing the quality system, and applying total quality control in the company.

QUAL 204 Total Quality Management 3 Credits
Prerequisites: None. Teaches the philosophy of total quality management. Focuses on improving processes and reducing variation in systems. Covers management's role in improving aspects of manufacturing and service organization to achieve quality improvement.

QUAL 206 ISO/ QS International Standards 3 Credits
Prerequisites: None. Teaches the basic principles of ISO 9000 standards, QS 9000 standard, ISO 14000 standard. Includes instruction on internal auditing with emphasis on the role of the internal auditor in regard to the maintenance of the quality systems.

QUAL 210 Quality Management Principles 3 Credits
Prerequisites: None. Stresses the management concept relating to employee attitudes, motivation and job satisfaction, as well as philosophies, styles of leadership, and team building as they relate to quality objectives.

RADI 111 Orientation and Patient Care 4 Credits
Prerequisites: Acceptance into the program through appropriate assessment. Introduces the profession of radiology and the practitioner’s role in the health care system. It also provides students with the basic concepts of patient care dealing with the emotional and physical needs of the patients including infection control and standard precautions.

RADI 112 Image Production and Evaluation I 3 Credits
Prerequisites: Acceptance into the program through appropriate assessment. Content is designed to establish a knowledge base in factors that govern and influence the production and recording of radiologic images. Film and electronic imaging with related accessories will be emphasized. The mathematical calculations of x-ray technique will be taught along with the operations of darkrooms and developing equipment commonly used in the field.

RADI 113 Radiographic Positioning I 3 Credits
Prerequisites: Acceptance into the program through appropriate assessment. An introduction to and familiarization with the student with the basic routines of radiographic positioning, shielding techniques, and related terminology. Actual radiographs are included for analysis of proper positioning and overall image quality.

RADI 114 Radiographic Clinical Education I 3 Credits
Prerequisites: Acceptance into the program through appropriate assessment. Content and clinical practice experiences shall be designed for sequential development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. Through structured sequential, competency-based assignments in clinical setting, concepts of team practice, patient-centered clinical practice and professional development shall be discussed, examined, and evaluated. Clinical practice experiences shall be designed to provide patient care and assessment, competent performance of Radiologic imaging and total quality management. Levels of competency and outcomes measurement shall ensure the well being of the patient preparatory to, during, and following the radiologic procedure.

RADI 115 Radiographic Positioning II and Lab 3 Credits
Prerequisites: RADI 113. Content is designed to provide a knowledge base necessary to perform standard radiographic procedures along with the application to special studies. Consideration will be given to the production of images of optimal diagnostic quality. Laboratory experience should be used to complement the didactic portion.

RADI 116 Radiographic Clinical Education II 4 Credits
Prerequisites: RADI 114. Content and clinical practice experiences shall be designed for sequential development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. Through structured sequential, competency-based assignments in clinical setting, concepts of team practice, patient-centered clinical practice and professional development shall be discussed, examined, and evaluated. Clinical practice experiences shall be designed to provide patient care and assessment, competent performance of Radiologic imaging and total quality management. Levels of competency and outcomes measurement shall ensure the well being of the patient preparatory to, during, and following the radiologic procedure.

RADI 117 Radiation Physics and Equipment Operation 3 Credits
Prerequisites: Admission to the program through appropriate assessment. Designed to establish a basic knowledge of atomic structure and terminology. Also presented are the nature and characteristics of radiation, x-ray production and the fundamentals of photon interactions with matter.

RADI 201 Radiographic Positioning III and Lab 3 Credits
Prerequisites: RADI 115. Content is designed to provide a knowledge base necessary to perform standard radiographic procedures along with the application to special studies. Consideration will be given to the production of images of optimal diagnostic quality. Laboratory experience should be used to complement the didactic portion.

RADI 202 Radiographic Clinical Education III 4 Credits
Prerequisites: RADI 116. Content and clinical practice experiences shall be designed for sequential development, application, critical
analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. Through structured sequential, competency-based assignments in clinical setting, concepts of team practice, patient-centered clinical practice and professional development shall be discussed, examined and evaluated. Clinical practice experiences shall be designed to provide patient care and assessment, competent performance of Radiologic imaging and total quality management. Levels of competency and outcomes measurement shall ensure the well being of the patient preparatory to, during and following the radiologic procedure.

**RADT 203 Radiographic Clinical Education IV 4 Credits**
Prerequisites: RADT 202. Content and clinical practice experiences shall be designed for sequential development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. Through structured sequential, competency-based assignments in clinical setting, concepts of team practice, patient-centered clinical practice and professional development shall be discussed, examined and evaluated. Clinical practice experiences shall be designed to provide patient care and assessment, competent performance of Radiologic imaging and total quality management. Levels of competency and outcomes measurement shall ensure the well being of the patient preparatory to, during and following the radiologic procedure.

**RADT 204 Radiographic Clinical Education V 4 Credits**
Prerequisites: RADT 203. Content and clinical practice experiences shall be designed for sequential development, application, critical analysis, integration, synthesis and evaluation of concepts and theories in the performance of radiologic procedures. Through structured sequential, competency-based assignments in clinical setting, concepts of team practice, patient-centered clinical practice and professional development shall be discussed, examined and evaluated. Clinical practice experiences shall be designed to provide patient care and assessment, competent performance of Radiologic imaging and total quality management. Levels of competency and outcomes measurement shall ensure the well being of the patient preparatory to, during and following the radiologic procedure.

**RADT 206 Radiobiology and Radiation Protection 3 Credits**
Prerequisites: RADT 111 and RADT 117. Covers theories and principles of the effects of ionizing radiation upon living tissues. Includes dosages, measurements, DNA structures and functions, cellular radiosensitivity. Overview of principles of radiation protection covered.

**RADT 209 Radiographic Positioning IV 3 Credits**
Prerequisites: RADT 201. Content is designed to provide a knowledge base necessary to perform standard radiographic procedures along with the application to special studies. Consideration will be given to the production of images of optimal diagnostic quality. Laboratory experience should be used to complement the didactic portion.

**RADT 218 Image Production and Evaluation II 3 Credits**
Prerequisites: RADT 112. Explains phototiming and its relationship to manual techniques. Associates kVp and mAs with the quality and quantity of radiation. Covers standard darkroom procedure, automatic processing, fluoroscopy and quality assurance.

**RADT 221 Pharmacology and Advanced Procedures 3 Credits**
Prerequisites: RADT 201. Covers theories and principles of current imaging modalities. Content is also designed to cover contrast media along with the theory and basic technique of venipuncture. The role of the radiographer during medical emergencies is also addressed.

**RADT 250 Introduction to Cross Sectional Anatomy 2 Credits**
Prerequisites: Program Advisor Approval. Introduces the student to cross sectional anatomy. Covers the terminology related to sectional anatomy. Discusses different planes of the body and associates them with quality of images that will be encountered in clinical practice. Discusses common pathologies related to the anatomy presented. Covers anatomy in cross sectional plane and all structures and functions pertaining to the related anatomy.

**RADT 275 Pathology for Radiologic Technology 3 Credits**
Prerequisites: RADT 112, RADT 117 and RADT 218. This course examines basic concepts concerning disease, its causes and the resulting changes as viewed radiographically. Emphasizes needed technical changes to produce optimal radiographs from correlations to patient symptoms.

**RADT 276 Film Critique for Radiologic Technology 3 Credits**
Prerequisites: RADT 117, RADT 201 and RADT 218. This course analyzes radiographic images for accuracy. Students will discuss how to adjust mis-positioning or technical factors to obtain optimal images when a less than optimal one has been obtained. Course intends to develop a high degree of problem-solving ability, as well as provide a practical image analysis reference for the senior student.

**RADT 299 General Exam Review 3 Credits**
Prerequisites: Program Advisor Approval. Reviews content of program, emphasizing anatomy, physics, exposure principles, positioning and radiation safety. Simulated registry exams prepare students for the American Registry of Radiologic Technologist Examination.

**RADT 100 Introduction to Radiation Therapy 2 Credits**
Prerequisites: Admission to the Radiation Therapy program. Content is designed to provide the student with an overview of the foundations in radiation therapy and the practitioner's role in the health care delivery system. This course will provide students with a historical overview of radiation therapy and its role in medicine. An introduction to radiation therapy treatment techniques, equipment, terminology, and professional responsibilities will be included.

**RADT 145 Clinical Externship I 1 Credit**
Prerequisites: Admission to the Radiation Therapy program. Corequisite: RADT 100. Introduces the student to procedures performed in Radiation Therapy, and provides the student with greater opportunities to gain practical experience. During this first semester of clinical education, the student is expected to develop the competency to perform simple clinical procedures with progressively less assistance. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

**RADT 150 Patient Care in Radiation Oncology 3 Credits**
Prerequisites: None. Corequisite: RADT 100. Provides the student with basic concepts of patient care specific to radiation therapy including consideration of physical and psychological conditions. Handling of patients, patient examinations, asepsis, local and systemic reactions, nutrition and medications are discussed. Factors influencing patient health during and following a course of radiation will be identified.

**RADT 155 Clinical Externship II 3 Credits**
Prerequisites: RADT 145. Introduces the student to procedures performed in Radiation Therapy, and provides the student with greater opportunities to gain practical experience. During this second semester of clinical education, the student is expected to develop the competency to perform simple to intermediate clinical procedures with progressively less assistance. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

**RADT 220 Techniques and Applications in Radiation Therapy 3 Credits**
Prerequisites: RADT 100. Content is designed to provide the student with the basic concepts of dosimetry and treatment planning. Various external beam techniques and applications, depth dose data, and summation of isodose curves are discussed. Modalities of treatment, patient setup, dose measurement, dose calculation and verification are also included.
RDTH 223 Radiobiology and Safety 2 Credits
Prerequisites: RDTH 100. Introduces the student to the fundamentals of radiobiology and the effects of radiation on living tissue. This course evaluates the effects of radiation from the cellular level to the epidemiological effects on communities and potential offspring. Specific topics in radiobiology include: basic radiation interactions, cellular biology review, short and long-term effects of radiation, case studies, risk factors, containment and handling of live sources, reduction of patient dose, radiation monitoring and applicable state and federal regulations.

RDTH 225 Clinical Externship III 4 Credits
Prerequisites: RDTH 155. Introduces the student to procedures performed in Radiation Therapy, and provides the student with greater opportunities to gain practical experience. During this third semester of clinical education, the student is expected to develop the competency to perform simple to intermediate clinical procedures with progressively less assistance. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

RDTH 230 Pathology and Treatment Principles I 2 Credits
Prerequisites: RDTH 220. Provides the student with the fundamentals of each disease process. Malignant conditions, etiology and epidemiology, patient workup and methods of treatment are discussed. Attention is given to patient prognosis, treatment results and the effects of combined therapies.

RDTH 232 Radiation Therapy Physics 3 Credits
Prerequisites: RDTH 220. Establishes a basic knowledge of physics pertinent to developing an understanding of radiations used in the clinical setting. Fundamental physical units, measurements, principles, atomic structure and types of radiation are emphasized. Also presented are the fundamentals of x-ray generating equipment, x-ray production and its interaction with matter.

RDTH 233 Research Methodology in Radiation Oncology 1 Credit
Prerequisites: RDTH 100. Introduces the student to the logic, method, variation and precision of thought required in the practice and/or consumption of research.

RDTH 235 Clinical Externship IV 5 Credits
Prerequisites: RDTH 225. Introduces the student to procedures performed in Radiation Therapy, and provides the student with greater opportunities to gain practical experience. During this fourth semester of clinical education, the student is expected to develop the competency to perform simple to intermediate clinical procedures with progressively less assistance. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

RDTH 240 Pathology and Treatment Principles II 2 Credits
Prerequisites: RDTH 230. Provides the student with the fundamentals of several more disease processes. Malignant conditions, etiology and epidemiology, patient workup and methods of treatment are discussed. Attention is given to patient prognosis, treatment results and the effects of combined therapies.

RDTH 241 Treatment Planning 3 Credits
Prerequisites: RDTH 220. Provides the student with the concepts of dosimetry and treatment planning. Various external beam techniques and applications, depth dose data, and summation of isodose curves are discussed. Modalities of treatment, patient setup, dose measurement, dose calculation and verification are also included.

RDTH 242 Quality Management in Radiation Oncology 2 Credits
Prerequisites: RDTH 232. Focuses on the evolution of quality management (QM) programs and continuing quality improvements in radiation oncology. Topics will include the need for quality assurance (QA) checks, QA of the clinical aspects and chart checks, film checks; the various types of evaluations and tests performed on simulators, megavoltage therapy equipment and therapy planning units; the role of radiation therapists in quality management programs; legal and regulatory implications for maintaining appropriate QM guidelines as well as the role computers and information systems serve within the radiation oncology department.

RDTH 243 Radiation Therapy Capstone Course 2 Credits
Prerequisites: RDTH 223, RDTH 232, and RDTH 240. Integrates the various professional courses into a single perspective as it relates to radiation oncology. Professional concerns will be addressed and attention will be given to issues related to the workplace, continued professional development, and the need for lifelong learning. Extensive review of programmatic material will be the focus of this course. Extensive review of physics, protection and radiation therapy procedures is covered.

RDTH 245 Clinical Externship V 3 Credits
Prerequisites: RDTH 235. Allows the student to become proficient in all radiation therapy clinical procedures. During this fifth semester of clinical education, the student is further introduced to dosimetry procedures and are expected to have attained competency to perform all clinical procedures independently, under the direct supervision of a qualified professional or radiation therapist. Emphasis continues to be given to the development of professional responsibility and the practice of total patient care and radiation safety practices.

RDTH 260 Principles and Practice of Proton Therapy 8 Credits
Prerequisite: RDTH 100. Introduces the student to procedures performed in proton therapy. Topics covered include practical applications of using protons and dosimetric concepts involved in treating patients. Immobilization techniques and accessory fabrication are also discussed. This course will address quality management, physics, radiobiology and regulatory procedures as they pertain to the field. Emphasis continues to be given to the development of professional and social responsibilities.

RDTH 261 Proton Therapy Lab Practicum 3 Credits
Corequisite: RDTH 260 Principles and Practice of Proton Therapy. Introduces the student to procedures performed in proton therapy. The course will cover the principles of proton therapy and the practical application of proton therapy in the clinic. Emphasis continues to be given to the development of professional and social responsibilities.

RDTH 265 Proton Therapy Clinical Experience 3 Credits
Corequisites: RDTH 240 and RDTH 261. This is the primary emphasis of this course. The student will be introduced to common treatment procedures performed in a proton therapy department. During this lab course the student will gain practical experience and develop the competency necessary to perform a variety of procedures in a controlled environment.

RESP 118 Respiratory Therapy in Ambulatory Care 3 Credits
Prerequisites: APHY 102, HLHS 101, MEAS 218 and MEAS Program Chair Approval. Prepares students who are planning to work in ambulatory care as medical assistants to aid patients with respiratory disease. The course will provide learning and instruction in the use of oxygen; aerosolized medication therapy; respiratory system assessment; respiratory diseases; patient preparation for diagnostic exams; and prepare the student to coordinate care with home care providers for patients with respiratory disease.

RESP 121 Introduction to Respiratory Care 6 Credits
Prerequisites: Program Chair Approval. Introduces respiratory care including a brief history of the profession; equipment cleaning and sterilization techniques; patient assessment techniques to include assessing pain levels, evaluating levels of dyspnea, advanced directives and isolation techniques. Also includes...
medical records documentation, gas analyzers, introduction and application of therapeutic modalities including oxygen therapy, aerosol and humidity therapy, environmental therapy, lung expansion therapy, airway management to include tube placement, tracheostomy care and tracheobronchial aspiration. An overview of ethical practice and patient safety are included.

RESP 122 Therapeutic Modalities 3 Credits
Prerequisite: RESP 121. Presents medicinal aerosol therapy and respiratory pharmacology and applying it to the nervous system and its receptors. In addition, bronchial hygiene therapies, basic bedside pulmonary function testing, tracheostomy tube changes and 12-Lead EKGs will be discussed and demonstrated.

RESP 123 Cardiopulmonary Physiology 3 Credits
Prerequisites: APHY 102. Presents the cardiopulmonary system including ventilation, perfusion, and gas exchange; introduces interpretation and application of arterial blood gases, acid-base regulation, and physiologic monitoring. Reviews the basic principles of physics as it relates to the respiratory system.

RESP 125 Critical Care I 3 Credits
Prerequisite: RESP 121. Presents an introduction to the respiratory care of the critically ill patient. This includes arterial blood gas collection, analysis and interpretation; and basic medical laboratory data. Introduces concepts and techniques of critical respiratory care of adults, to include establishment and maintenance of artificial airways. Includes application of adult mechanical ventilators and related cardiopulmonary monitoring equipment.

RESP 126 Clinical Medicine I 3 Credits
Prerequisites: RESP 123. This particular course introduces etiology, symptomatology, diagnosis, therapeutics, and prognosis of selected pulmonary diseases.

RESP 129 Respiratory Care Pharmacology 3 Credits
Prerequisites: Program Chair Approval. The most common pharmacological agents currently being administered are discussed according to all body systems and in relation to the nervous system and its receptors. Emphasis is placed on classifications, indications, side effects, dosages, and routes of administration. Medication discussion to include, but not limited to emergency drugs, antibacterial medication and anti-fungal medications.

RESP 134 Clinical Applications I 2 Credits
Prerequisites: Current CPR AHA Course C or equivalent and RESP 121. Introduces the student to the hospital environment. The student will be exposed to various hospitals and respiratory care departments, patient charts, patient identification and communication within the hospital. Provides supervised experience in oxygen therapy, lung expansion therapy, humidity/aerosol therapy, inspiratory muscle training/cough techniques, and charting. Utilizes standard precautions and infections disease protocols during patient care and handles biohazardous materials appropriately.

RESP 137 Clinical Applications II 2 Credits
Prerequisite: RESP 134. Provides supervised experience in selected therapeutic modalities. Students will perform lung expansion techniques. Additionally, students will be exposed to various bronchial therapies and cough techniques. Administration of pharmacological agents using various aerosol devices will be included. Students will participate in the development of respiratory care plans, patient transports, and rapid response teams to improve patient care. Students may have observation rotations in critical care areas. Continuing certification in CPR is required.

RESP 218 Clinical Applications in Critical Care 5 Credits
Prerequisites: RESP 125 and RESP 137. Provides supervised experience in selected therapeutic modalities. Also includes advanced patient assessment, arterial blood gas analysis, and airway care. Provides supervised experience in adult critical care with mechanical ventilation. Allows students to participate in hospital transfers along with land/air transports. Students will participate in the development of respiratory care plans to improve patient outcomes within the critical care setting. An introduction to pulmonary function testing is included. Continued Certification in CPR is required.

RESP 219 Clinical Applications in Critical Care I 2 Credits
Prerequisites: RESP 125 and RESP 137. Provides supervised experience in critical care units. Students will review data, assess patients, initiate and modify airway maintenance, perform arterial blood gas procedures, analysis and assist with managing mechanical ventilated patients. Additional exposure includes utilizing disease specific ventilator protocols, infection disease protocols and quality control procedures. Allows students to participate in hospital transfers along with land/air transports. Continued certification in CPR is required.

RESP 220 Clinical Applications in Critical Care II 3 Credits
Prerequisites: RESP 219. Continue to provide supervised experiences in the adult critical care areas. Student will review advanced data, e.g. hemodynamic monitoring, pulmonary mechanics, cardiac monitoring, etc. Perform, interpret, and document advanced ventilator modifications and monitoring and make appropriate recommendations for modifications of care. Interaction between student and physician is expected.

RESP 221 Cardiopulmonary Diagnostics 4 Credits
Prerequisites: RESP 126. Presents in depth approaches to advanced diagnostic procedures. Special emphasis is placed on techniques of patient evaluation, selection of equipment, performing procedures, cardiopulmonary monitoring during the procedure, interpreting test results and suggesting management of the patient. Also included are advanced techniques of patient assessment through pulmonary function testing and other selected assessment techniques.

RESP 222 Critical Care II 3 Credits
Prerequisites: RESP 125. Presents advanced techniques of mechanical ventilation of neonatal, pediatric and adult patients; includes fetal development and assessment; neonatal and pediatric assessment, equipment, procedures and therapeutic techniques, introduces related aspects of the neonatal intensive care unit environment. Selected neonatal and pediatric diseases will be discussed.

RESP 224 Clinical Medicine II 3 Credits
Prerequisite: RESP 221. Studies etiology, symptomatology, diagnosis, therapeutics, and prognosis of disease conditions related to respiratory care; focuses on the interrelatedness of all physiologic systems. Emphasis on treatment protocols; includes preparation for the national board credentialing examinations such as the CRT, RRT and clinical simulation.

RESP 226 Continuing Care 2 Credits
Prerequisite: RESP 125. Provides an overview of respiratory care roles in home care, alternative care sites and pulmonary rehabilitation programs. Understand the purpose and function of various respiratory equipment used in home and alternative care settings. Emphasis is placed on the importance of assessing patients' learning needs and how to effectively educate a patient and/or family member concerning smoking cessation and health management. Presents an overview of emergency preparedness in relation to disaster management and the inclusion of vaccination protocols. Provide an overview of mass casualty incident response.

RESP 229 Emergency Management 1 Credit
Prerequisites: Current CPR AHA Course C or equivalent. Application of various techniques in advanced cardiopulmonary support during life threatening events. At the end of the course, students will be expected to successfully apply knowledge in a mock adult patient care setting.

RESP 237 Clinical Applications of Advanced Critical Care and Specialty Rotations 3 Credits
Prerequisites: RESP 138. Provides additional supervised experience in selected therapeutic modalities. Also includes advanced cardiopulmonary diagnostic techniques, application of invasive and non-invasive monitoring of the cardiopulmonary system, and experiences in respiratory care and quality assurance roles. Also includes advanced clinical experience in adult, pediatric and neonatal intensive care units. Exposure to home care settings, alternative care sites and pulmonary rehabilitation programs is expected. Students are expected to complete patient care plans, written case studies and all clinical exams. Continuing certification in CPR is required.
RESP 250 Beginning Polysomnography 2 Credits
Prerequisites: Program Advisor Approval. An overview of the field of polysomnography including history, job responsibilities, credentialling, medical ethics and patient confidentiality. Normal and abnormal sleep disorders, integrating the physiologic functions of the nervous, respiratory and cardiovascular systems. Emphasis on basic sleep sciences, physiology, monitoring, electrical safety, diagnosis and treatment of sleep disorders.

RESP 251 Intermediate Polysomnography 3 Credits
Prerequisites: APHY 102 and RESP 250 or Program Advisor Approval. Basic discussions of recording sleep apnea montage. Emphasis on equipment, principles of operation, associated activity related to normal and abnormal stages of sleep, placement and calibration of the following: electroencephalography (EEG), electrocorticography (ECoG), electrocardiography (ECG), electromyography (EMG), pulse oximetry (SpO2), inductive plethysmography and airflow thermocouple.

RESP 252 Polysomnography Directed Practice I 3 Credits
Prerequisites: APHY 102 and RESP 250 or Program Advisor Approval. Directed practice in clinical setting in sleep laboratory or a sleep center. Departmental orientation, policies and procedures, individual body mechanics and patient transfer techniques. Emphasis in overseeing periodic cessation of respiratory activity based on the placement and monitoring of the following: electroencephalography (EEG), electrocorticography (ECoG), electrocardiography (ECG), electromyography (EMG), pulse oximetry (SpO2), inductive plethysmography and airflow thermocouple.

RESP 253 Neurophysiology of Sleep 2 Credits
Prerequisites: RESP 251 and RESP 252 or Program Advisor Approval. Presentation and discussion of the chemical and neural control of the onset of sleep and wakefulness; normal function and pathophysiology; current theory and research applications.

RESP 254 Intermediate Polysomnography II 3 Credits
Prerequisites: RESP 251 and RESP 252 or Program Advisor Approval. Presentation and discussion of the psychomotor practices related to interpretation of the polysomnogram for adult and pediatric patients. Emphasis on continuous positive airway pressure (CPAP) and bi-level positive airway pressures (BiPAP) equipment; artifact recognition and troubleshooting of sleep montage results. Includes digital data acquisition and parasomnias.

RESP 255 Polysomnography Directed Practice II 3 Credits
Prerequisites: RESP 252 or Program Advisor Approval. Directed practice in the clinical setting in sleep laboratory or a sleep center. Departmental orientation, policies and procedures; assist adult and pediatric patient set-up and discontinuance in monitoring of the following: electroencephalography (EEG), electrocorticography (ECoG), electrocardiography (ECG), electromyography (EMG), pulse oximetry (SpO2), inductive plethysmography and airflow thermocouple. Emphasis on scoring a sleep montage.

SCIN 100 Earth Science TransferIN 4 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Introduces physical concepts and theories pertaining to current applications and trends in earth science. Basic concepts in geology, meteorology, oceanography, and astronomy will be illustrated.

SCIN 101 Science of Traditional and Alternative Energy 4 Credits
Prerequisites: MATH 111 or MATH 118 or demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 035 or MATH 043 and ENGL 025 and ENGL 032. Introduces the basic physical concepts in understanding the science of different forms of energy—mechanical, kinetic, heat, electrical, light. Selected aspects of common sources of sustainable energy, including solar, wind, water, geothermal, and biomass will also be illustrated. Consideration of the science of transportation or storage of energy using new methods that reduce environmental impact will be discussed.

SCIN 111 Physical Science TransferIN 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 050 or MATH 015 or MATH 023. Introduces physical concepts and theories pertaining to current applications and trends in physics. Basic concepts in chemistry, earth science and astronomy will also be illustrated. Emphasizes concepts and applications.

SOC 245 Cultural Diversity 3 Credits
Prerequisites: SOC 211 and ENGL 111. Surveys multiple dimensions of diversity and social stratification in the United States, including race, ethnicity, age, class, physical ability, religion, gender, and sexuality. The social impact of the cultural integration of these groups will be introduced.

SOC 252 Social Problems TransferIN 3 Credits
Prerequisites: SOC 211. Explores various problems in contemporary American society. Examines structural and cultural aspects of social problems with specific reference to their origin, development, and suggested solutions. Course utilizes a sociological framework which encompasses a variety of theoretical perspectives.

SOC 253 Introduction to Social Psychology 3 Credits
Prerequisites: PSYC 101 and SOC 211. The study of social psychology as a science, and how social psychologists study the interactions within and between individuals, social groups and institutions. The course cross-lists with PSYC 253.

SOC 261 Sociology of Relationships and the Family 3 Credits
Prerequisites: SOC 211. Examines the sociological and psychological dynamics of dating, relationships, marriage, family life and parenting. Introduces students to the major theoretical paradigms as they relate to relationships. Emphasis will be placed on how our contemporary society and culture are affecting these institutions and customs. The course will also explore the impact of divorce and stepfamilies on today's lifestyles.

SPAN 101 Spanish Level I TransferIN 4 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An introductory course in Spanish. Focuses on developing students' capacity to use the language and to appreciate Spanish-speaking cultures. Emphasis is placed on skills of listening, speaking, reading, writing, and grammar acquisition.

SPAN 102 Spanish Level II TransferIN 4 Credits
Prerequisites: SPAN 101 or demonstrated competency in Spanish through appropriate assessment; demonstrated competency in reading and writing through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. Continues the study of Spanish for students who have had the equivalent of one semester of college-level Spanish. Introduces additional grammatical structures and vocabulary to further develop speaking, reading, writing and listening skills as well as an appreciation of the cultures of the Spanish-speaking world.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPAN 201</td>
<td>Spanish Level III</td>
<td>4</td>
<td>SPAN 102 or demonstrated competency in Spanish through appropriate assessment; demonstrated competency in reading and writing through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025 and ENGL 032. In Spanish 201, Spanish is the primary medium of instruction, as well as the subject. The goal of the course is to continue development of and reinforcement of the basic skills of the target language: listening, speaking, reading, and writing. The course continues the study of grammar/syntax and vocabulary building and introduces Spanish and Latin American civilization through conversation coordinated with reading of cultural text as well as written and oral reports.</td>
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<tr>
<td>SPAN 202</td>
<td>Spanish Level IV</td>
<td>4</td>
<td>SPAN 201 or demonstrated competency in Spanish through appropriate assessment; demonstrated competency in reading and writing through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025 and ENGL 032. Spanish is the primary medium of instruction. The goal of the course is to continue the development and reinforcement of the skills of the target language: listening, speaking, reading, and writing at an advanced intermediate level. The course continues the study of grammar/syntax and vocabulary building and continues the study of Spanish and Latin American civilizations through readings, both journalistic and literary, and reinforced through discussions as well as written and oral reports.</td>
</tr>
<tr>
<td>SPAN 240</td>
<td>Introduction to the Literature of the Spanish-Speaking World</td>
<td>3</td>
<td>SPAN 202 or demonstrated competency in Spanish through appropriate assessment; demonstrated competency in reading and writing through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025 and ENGL 032. Reading Strategies for College II. An introduction to the literary analysis of Hispanic literature. Provides a general overview of representative works of Hispanic literature from the Middle Ages through the Twentieth Century. Students will read and analyze works of poetry, prose, and theatre within the text's cultural and historical contexts using the fundamental concepts of literary analysis to guide the interpretation.</td>
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<tr>
<td>SPMT 101</td>
<td>Introduction to Sport Management</td>
<td>3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Focuses on the nature and scope of sport management. Students will examine the breadth of sport related careers as well as engage in critical thinking about current sport management issues and trends.</td>
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<tr>
<td>SPMT 201</td>
<td>Sport in Society</td>
<td>3</td>
<td>Demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in ENGL 025, ENGL 032 and MATH 044 or MATH 015. Introduces the socio-cultural dimensions of sport. Sport is sometimes trivialized as a playground off to the side of the real world. This course will describe to the student that sport is a microcosm of society as well as a site for changing society. Finally, the course will show that sport has a profound influence on the social life of large numbers of people of all ages.</td>
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<tr>
<td>SPMT 202</td>
<td>Management and Leadership in Sport</td>
<td>3</td>
<td>SPMT 101. A survey course designed to introduce the student to the management related to sport. The course will assist students in understanding what the role of a manager is in the various sport industries.</td>
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<tr>
<td>SPMT 203</td>
<td>Venue and Event Management</td>
<td>3</td>
<td>SPMT 202. A survey course designed to introduce the student to the management related to venues and events in sport. The course will assist students in understanding the role of a venue or event manager.</td>
</tr>
<tr>
<td>SPMT 280</td>
<td>Sport Management Internship</td>
<td>3</td>
<td>Program Chair Approval. Full-time work experience in the sport industry (40 hours/week). The experience is work in a sport management setting in which management practices are applied.</td>
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<tr>
<td>SUG 111</td>
<td>Fundamentals of Surgical Technology</td>
<td>4</td>
<td>Admission to Surgical Technology Program, Corequisite: SURG 112. Introduces principles of sterile techniques and the operative care of the surgical patient. Includes the roles of scrubbing and circulating duties.</td>
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<tr>
<td>SUG 112</td>
<td>Application of Surgical Fundamentals</td>
<td>2</td>
<td>Admission to Surgical Technology Program, Corequisite: SURG 111. Demonstrates the application of surgical fundamentals. Correlates theory to practice by requiring students to participate as members of a surgical team in laboratory simulations.</td>
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<tr>
<td>SUG 114</td>
<td>Clinical Applications I</td>
<td>3</td>
<td>SURG 111, SURG 112, APHY 102, BIOL 2XX, HLHS 105 and Program Advisor Approval. Corequisites: SURG 113. Correlates the principles and theories of basic surgical procedures to clinical performance in affiliating hospitals. Includes knowledge, skills and attitudes necessary for successful implementation of safe patient care in an operating room.</td>
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<tr>
<td>SUG 201</td>
<td>Pharmacology</td>
<td>3</td>
<td>APHY 101 and HLHS 101 and demonstrated competency through appropriate assessment or earning a grade of &quot;C&quot; or better in MATH 050 or MATH 015 or MATH 023. Introduces the basic concepts of pharmacology. Emphasis is given to classification, indications, interactions and adverse reactions of commonly used medications. Dosage calculation, weights and measures, terminology and abbreviations associated with drug use are presented. Medication use in the perioperative patient is addressed.</td>
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<tr>
<td>SUG 211</td>
<td>Surgical Procedures II</td>
<td>6</td>
<td>SURG 113 and SURG 114 and COMM 101 or COMM 102 and PSYC 101 or SOCI 111. Corequisites: SURG 212. Studies advanced surgical procedures in relation to the physiological aspects of surgical intervention including those procedures related to the special senses, genitourinary, reproductive, musculoskeletal and nervous systems. Includes knowledge of the involved anatomy, existing pathology, surgical hazards encountered, the surgical procedure, and a review of perioperative patient care.</td>
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<tr>
<td>SUG 212</td>
<td>Clinical Applications II</td>
<td>9</td>
<td>SURG 113 and SURG 114 and COMM 101 or COMM 102 and PSYC 101 or SOCI 111. Corquisites: SURG 211. Correlates the basic principles and theories of advanced surgical procedures to clinical performance in affiliating hospitals. Includes knowledge, skills and attitudes necessary for successful implementation of safe patient care in an operating room.</td>
</tr>
<tr>
<td>SUG 213</td>
<td>Surgical Procedures III</td>
<td>3</td>
<td>SURG 211 and SURG 212. Corequisites: SURG 214. Studies specialized surgical procedures including those related to aesthetic and reconstructive surgery, the cardiothoracic and vascular systems. Includes knowledge of the involved anatomy, existing pathology, surgical hazards encountered, the surgical procedure, and a review of perioperative patient care.</td>
</tr>
<tr>
<td>SUG 214</td>
<td>Clinical Applications III</td>
<td>7</td>
<td>SURG 211 and SURG 212. Corequisites: SURG 213. Correlates principles and theories of specialized surgical procedures to the clinical performance in affiliating hospitals. Includes the knowledge, skills and attitudes necessary for successful implementation of safe patient care in an operating room.</td>
</tr>
</tbody>
</table>
SUST 100 Introduction to Renewable Energy Systems 3 Credits
Prerequisites: None. Introduction to energy production systems from renewable sources. Course covers solar, wind, geothermal, biomass, anaerobic digestion, and other emerging sources or energy production. System factors are researched. Discussion and exercises center around renewability and sustainability.

SUST 101 Wind Power 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Introduction to wind power systems. The course covers aspects of site selection, topographic map reading, meteorology, wind turbine construction, wind power system components, and wind turbine safety.

SUST 102 Solar, Wind, and Geothermal Systems 3 Credits
Prerequisites: INDT 113 or ADMF 113. Installation and maintenance of residential and commercial scale solar power and wind power, and geothermal heat systems. Components, model, and use of available solar, wind, and geothermal systems are researched and used in the course.

SUST 111 Wind Turbine Mechanical Systems I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. The use and maintenance of the mechanical, hydraulic, and electrical systems found in wind turbine systems. The course will cover general wind turbine systems and operations. Troubleshooting for the mechanical, hydraulic, and electrical systems will be covered.

SUST 123 Fundamentals of Biofuel Production 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in MATH 044 or MATH 015. Introduction to feedstock's and production processes of ethanol and biodiesel. This course covers the acquisition, handling, and treatment processes of feedstock's destined for biofuel production. Laboratory exercises will include the study of the chemistry and biology used in the biodiesel and fermentation processes.

SUST 201 Bioenergy Feedstock Systems 3 Credits
Prerequisites: None. Collection, transportation, handling, and storage of bio-based feedstocks. Course will focus on energy feedstock from products such as corn stover, switchgrass, and wood-based products destined for combustion, gasification, pyrolysis, pelletization, and co-firing with coal operations.

SUST 211 Wind Turbine Mechanical Systems II 3 Credits
Prerequisites: None. The continuation of Wind Turbine Mechanical System I. This course will cover the interaction of the wind turbine systems with technologies such as [mechanical] transmission, power generation, and power transmission systems.

SUST 220 Wind Turbine Controls 3 Credits
Prerequisites: None. Introduces the theory and uses of control systems and programmable logic devices (PLD) used in wind turbines from a holistic and application point of view. The course also introduces SCADA systems.

TECH 104 Computer Fundamentals for Technology 3 Credits
Prerequisite: None. Designed to integrate computer technology, decision-making and problem-solving skills by using multimedia technology and peripherals. Students will explore technology and the various forms it takes in the industrial world. Software and computer programs will be studied along with their computer applications. Students will also learn basic Windows operating system concepts, word processing, Excel spreadsheets, and research/communication tools within the college.

TMAS 101 Holistic Approach to Massage Therapy 3 Credits
Prerequisites: None. Considers the holistic approach to wellness with discussion including the connection of disease, the autonomic nervous system, and the emotions. Explores the importance of the mind-body connection.

TMAS 102 Legal Massage Applications 3 Credits
Prerequisites: None. Presents ethics of medicine and medical practice, as well as legal requirements and implications for allied health professions. Specific emphasis will be placed on the applications of ethics for massage practice situations. Forms, records, and documentation considerations will be addressed. Forms appropriate for use in a massage practice will be generated.

TMAS 103 Human Energies 2 Credits
Prerequisites: None. This course helps the student develop an understanding of the human energy system and how this system impacts and reflects the physical, emotional, mental, and spiritual aspects of health. The techniques of several energy therapists will be taught, as well as professional practitioner/client interactions and the importance of self-care. These techniques are useful in aiding relaxation, reducing pain, lessening anxiety, and accelerating wound healing, both for oneself and others.

TMAS 104 Hand and Foot Reflexes 2 Credits
Prerequisites: None. Teaches the different areas and points on the foot and hand relating to other areas of the body. Can be integrated into massage practice or can be an independent approach. An introduction to the musculoskeletal, cardiovascular, and nervous systems and their relationship to the zones on the feet are included. Systems disorders, including the sensory and endocrine, are also identified and discussed. The relationships of the five zones of the foot are identified as are the areas of the spine with spinal nerve innovation and intervention.

TMAS 120 Massage Technician Training I 3 Credits
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032 and MATH 015 or MATH 023 or MATH 050. This course will explore in detail the history of massage, professional and legal issues of massage, sanitation, professional touch, and massage equipment and products. Coursework will include the anatomy, physiology and psychology of the body, systems, and the effects of massage on each. Disease conditions will be discussed in terms of indications and contraindications for massage. Medical terminology will be introduced and used to prepare SOAP note documentation of massages performed. Students will perform circulatory massage techniques, body mechanics, and draping skills for full body relaxation massage.

TMAS 122 Massage Financial Management 3 Credits
Prerequisites: None. Provides instruction in massage office financial administration, bookkeeping, materials management, and computer applications. Addresses product sales and inventory and bookkeeping for tax preparation. Client tracking methods will be discussed. Retirement planning and self-employment/employment issues will be explored.

TMAS 125 Acupressure Theory and Methods 3 Credits
Prerequisites: APHY 101. Introduces the student to information and treatments designed around the approach of Asian medicine including energy systems, meridians, and the five elements theory. The basics of Shiatsu are included.

TMAS 126 Jin Shin Do Bodymind Acupressure 2 Credits
Prerequisites: None. This class presents theories and techniques necessary for effective practice of Jin Shin Do Acupressure. Approximately half the time will be in lecture and half in practical hands-on skill. Students will be introduced to the basic theories of Traditional Chinese Medicine which is the basis of all Asian Bodywork Therapy. Students will learn 57 points in relation to surrounding anatomy. After this class, students will be able to utilize simple acupressure techniques alone or combined with massage sessions. With successful completion of this class, students are eligible to take the Intermediate Jin Shin Do class.

TMAS 140 Massage Technician Training II 3 Credits
Prerequisites: APHY 101 and TMAS 120. Client consultations, conditions, and treatment plans are discussed. Emotional transference and psychological effects of massage will be addressed. Additional techniques and modalities addressed include deep friction, trigger...
point release, unwinding, PNF techniques, positional release, and intro to therapeutic exercise. Corporate (chair) massage is introduced. Guidelines for setting up a practice, including compliance with local state regulations, are discussed. Together these courses provide training for entry-level technicians into massage therapy.

**TMAS 301 Aromatherapy** 3 Credits
Prerequisites: TMAS 101, TMAS 120. This advanced course teaches the therapist to use aromatic oils and aromatherapy into massage techniques.

**TMAS 101 Personal Fitness Training** 3 Credits
Prerequisite: None. The Personal Fitness Training course presents the concepts behind personal fitness, health, and well-being. The course includes basic principles of human anatomy, physiology, and exercise. Professional and legal practices are presented. Implementation of client’s goals in an exercise program is discussed. Course includes both lecture and lab components. This program is designed to adequately prepare the student for the National Physical Therapy Exam (NPTE). Successful board exam completion qualifies the student as a certified personal fitness trainer. Certification test fee will be in addition to tuition fees.

**TMAS 201 Sports Massage, Injuries and Hydrotherapies** 3 Credits
Prerequisites: TMAS 101 and TMAS 140. Presents a specific application of massage therapy designed to train the therapist in the treatment of athletes. Includes pre-event and post-event techniques, general maintenance massage, and therapeutic exercises. First aid for sports injuries and the use of hydrotherapies will be explored.

**TMAS 202 Deep Tissue/Muscle Release** 3 Credits
Prerequisites: TMAS 120 and TMAS 140. Helps practitioners apply deeper techniques in the body therapy releasing chronically held tissue from past trauma, illness, or recent injury. Discusses the use of various treatment modalities. Deep tissue techniques include compression and compression with stroke.

**TMAS 303 Herbs, Drugs and Massage** 3 Credits
Prerequisites: TMAS 101, TMAS 120. Covers common medical conditions, the most common medications and herbal remedies used to supplement healthcare. The most common medications and herbal remedies will be discussed according to body systems with emphasis on classifications, uses, routes of administration, interactions, contraindications, and side effects. The student will learn how to research medical conditions, medications, and herbal remedies. Also addressed are special precautions, legal aspects, and patient education.

**TMAS 204 Herbal Remedies** 3 Credits
Prerequisites: None. Covers the common medical conditions, and the herbal remedies that are used to supplement healthcare. The most common herbal remedies will be discussed, as well as the traditional indications, dose ranges, side effects, and contraindications. The student will gain a more in-depth knowledge of herbal remedies being utilized in healthcare today and how to research more knowledge on medical conditions and herbal remedies.

**TMAS 205 Pathology and Massage** 3 Credits
Prerequisites: TMAS 101, TMAS 102, and TMAS 140. Presents the basic concepts of diseases, their causes, and functional disturbances as they relate to the body systems. Includes the precipitating risk factors and appropriate methods of patient education regarding various disease processes and specifications for massage treatment.

**TMAS 206 Palpation Skills** 2 Credits
Prerequisites: TMAS 102 and TMAS 140. Develops the student’s palpation skills in order to enhance the practitioner’s ability to evaluate the human body and energy systems. The course teaches a deeper understanding of muscular anatomy which includes craniosacral and fascial materials. A substantial portion of this course will consist of exercises to refine palpation skills.

**TMAS 210 Biomechanics** 3 Credits
Prerequisites: TMAS 102 and TMAS 140. Provides a basic understanding of joint movement and body motion. Addresses muscle action, origin and insertion, muscle synergists, antagonists, and evaluations of forces on each body region. Entry-level biomechanical principles with the structure, function, and kinesiology of each body region will be explored.

**TMAS 220 Advanced Techniques and Hygiene** 3 Credits
Prerequisites: TMAS 125 and TMAS 140 or TMAS 140 and TMAS 141. Advanced training focusing on more techniques, body mechanics, and client management. Also addresses hygiene factors for both the therapist and the client. This course includes thorough client assessment techniques and is designed to expand the therapist into the medical field. The relationship of various illnesses and conditions to massage is discussed.

**TMAS 221 Business Development** 3 Credits
Prerequisites: TMAS 102, TMAS 122, and TMAS 140. Provides a basic understanding of the administrative responsibilities pertinent to massage therapy. Addresses computer usage, marketing, and office skills that will allow students to create, promote, and maintain their own business. Students prepare a business plan and define their goals for massage therapy.

**TMAS 240 Advanced Sports Massage** 3 Credits
Prerequisites: TMAS 101. Presents the sports massage therapist to be a higher qualified, specific therapist with an understanding of professional ethics and a team concept of (physician, trainer, coach, physical therapist, and massage therapist) as one team unit.

**TRCK 100 Diesel Preparative Maintenance** 3 Credits
Prerequisites: None. Introduces the maintenance requirements and procedures for modern diesel engines and medium and heavy duty trucks. Proper procedures and requirements for the Federal Highway Safety Inspection (DOT) will be discussed and practiced.

**TRCK 101 Steering and Suspension Systems** 3 Credits
Prerequisites: None. Studies steering and suspension systems commonly used on modern tractors and trailers. Study will include steering and suspension components, power steering units, alignment theory and procedures, tire repair and service, and wheel balancing. Diagnosis, repair, and servicing of components including modern air suspension systems will be emphasized.

**TRCK 105 Drive Train** 3 Credits
Prerequisites: None. Covers the chassis systems of trucks and includes clutch operation removal and adjustment, driveshaft removal and service, frame mounted accessories, truck bodies, and fifth wheel plates.

**TRCK 121 Brakes** 3 Credits
Prerequisites: None. Theory, service, and repair of medium and heavy truck brake systems and their components. Emphasis is given to air brakes and their theory of operation, repair, and service of system components. Spring brakes and anti-lock systems will be studied on tractors and trailers.

**TRCK 125 HT Manual Transmission/Differential** 3 Credits
Prerequisites: None. Theory, diagnosis, and overhaul procedures related to manual transmissions and differentials. Course includes service of twin counter-shaft, under-drive, overdrive, power-dividers, and air shift systems.
TTRCK 127 Engine Repair  
3 Credits  
Prerequisites: None. Studies precision tools, equipment, and procedures needed to repair modern diesel engines. Repair, proper assembly, and component identification are studied along with service of removable cylinder liners.

TTRCK 219 Diesel Engine Performance  
3 Credits  
Prerequisites: TTRCK 224. Covers advanced concepts in diesel operation and computerized systems. New and future Federal emission standards will be covered along with the sub-systems required to meet these standards. Emphasis will be placed on the diagnosis and repair of computerized systems, engine braking, injection systems, emission components, and buss communication systems.

TTRCK 224 HT Electrical Systems  
3 Credits  
Prerequisites: AUTC 123. Tractor and trailer wiring systems will be discussed along with proper diagnosis and repair procedures. Lighting and warning systems along with computerized engine controls will be examined. Dash switches, controls, and gauges will be studied along with factory wiring diagrams. This is the capstone course for the Medium/Heavy Duty Truck specialty.

VIDT 106 Video Producing and Planning  
3 Credits  
Prerequisites: VISC 105. An introduction to producing and planning techniques. Focuses on knowledge and skills necessary to plan for video and audio productions. Develops visual flow and continuity, and applies principles of visual design to video storyboards.

VIDT 110 Production Editing I  
3 Credits  
Prerequisites: VISC 105. An introduction to non-linear, computer-based editing techniques and post-production skills. Focuses on knowledge and skills necessary to edit video and audio productions. Develops visual flow and continuity, and applies principles of visual design to video editing.

VIDT 111 Studio and Field Production I  
3 Credits  
Prerequisites: VISC 105. Hands-on training in basic technical skills. Students will be provided with an overview of the video production process and help the student learn the terms and concepts used in the industry. This understanding will serve as the foundation for subsequent courses in video technology.

VIDT 113 Introduction to Film Appreciation  
3 Credits  
Prerequisites: Demonstrated competency through appropriate assessment or earning a grade of "C" or better in ENGL 025 and ENGL 032. An introduction to understanding and appreciating movie and film. Students will analyze movies for narrative and story telling, properties, cinematography, acting, editing and sound design.

VIDT 202 Studio and Field Production II  
3 Credits  
Prerequisites: VIDT 110 and VIDT 111. Focuses on knowledge and skills necessary to create and execute good video and audio productions. This course is designed to provide the student with a more complete view of the process of videography techniques and the video production process. Students will use the terminology and concepts used in the industry.

VIDT 203 Studio and Field Production III  
3 Credits  
Prerequisites: COMM 101 or COMM 102, ENGL 111 and VIDT 202. Advanced studio and field production skills. Focuses on writing, producing, and shooting projects both in the studio and on-location. Projects include remote video "shoot" planning, location scouting, and site preparation, and hands-on studio practicing. Focuses on knowledge and skills necessary to create and execute good video and audio productions.

VIDT 204 Studio and Field Production IV  
3 Credits  
Prerequisites: VIDT 203. Masters studio and field production skills with a focus on production, programming, and project management both in the studio and on-location.

VIDT 211 Production Editing II  
3 Credits  
Prerequisites: VIDT 110 and VISC 105. An advanced look at non-linear, computer-based editing techniques and post-production skills. Focuses on knowledge and skills necessary to edit video and audio productions for a variety of media outlets. Continues development of visual flow and continuity while applying advanced principles of visual design to video editing.

VIDT 101 Fundamentals of Design  
3 Credits  
Prerequisites: None. Introduces students to fundamental design theory. Emphasizes design in the real world and its application in everyday communication. Covers the history of design, its impact on society, and its role in the global economy.

VIDT 102 Fundamentals of Imaging  
3 Credits  
Prerequisites: None. Examines the principles of imaging and its applications in various fields. Covers image creation, manipulation, and editing techniques. Students will learn basic image editing and design principles.

VIDT 103 Interactive Media I  
3 Credits  
Prerequisites: VIDT 101, VISC 102, and VISC 115. Explores various software programs involved in creating multimedia presentations, digital movies, animation, and computer graphics. Students will learn the role of interactive media in contemporary design and visual communication.

VIDT 105 Video and Sound  
3 Credits  
Prerequisites: None. An introduction to the field of video technology. Students will learn the basics of planning, shooting, editing and postproducing video and sound. Projects include exercises in technical and creative skills application, equipment usage and production techniques.

VISC 110 Web Design I  
3 Credits  
Prerequisites: VISC 101 and VISC 115. An introductory level course, which focuses on the tools, strategies, and techniques for web site design, architecture, navigation, language and production. Explores the methods for creating successful web sites from concept to implementation. Examines the process of integrating text, graphics, audio, and video for effective communication of information.

VISC 111 Drawing for Visualization  
3 Credits  
Prerequisites: None. Introduces students to the tools and methods of drawing. Presents drawing as a catalyst to seeing and a way of recording ideas. Gives students the necessary drawing preparation for the study of design.

VISC 112 Electronic Layout  
3 Credits  
Prerequisites: VISC 113 and VISC 115. Provides intermediate instruction in practical and creative page layout. Uses an industry standard desktop publishing package designed for single and multi-page documents as a tool for executing layouts. Produces sample pages for student portfolios, which may include stationery, charts, forms, brochures, and calendars.

VISC 113 Typography  
3 Credits  
Prerequisites: None. An introductory course which addresses the issues pertinent to the proper and creative use of type and the enhancement of communication. Covers the history of type, typographic terminology, design, attention to aesthetics, common sense, and how we read. Projects emphasize an appreciation of and the practical use of type.

VISC 114 Graphic Design I  
3 Credits  
Prerequisites: VISC 101 and VISC 115. Provides introductory instruction in design for communication primarily for print media. Teaches the steps in design development with meaningful message and concept. Produces samples for student portfolios, which may include elements or comprehensive projects in logo, stationery, newspaper, magazine, billboard, and interface design, etc.

VISC 115 Introduction to Computer Graphics  
3 Credits  
Prerequisites: None. A fundamental course which introduces students to the computer's use in visual communication. The beginning focus of the course is on basic computer terminology and use, mastering fundamental skills, and developing efficient working styles. These skills are then developed by creating work with imaging, drawing, interactive, and page layout software.
### VISC 116 Electronic Illustration 3 Credits
Prerequisites: VISC 115. Provides intermediate instruction in illustration techniques using computer software designed for creating illustrations, technical, drawing, logos, packaging, maps, charts, and graphs. Emphasis is on preparing effective, creative illustrations for various media applications in an efficient, productive manner. Produces samples for student portfolios.

### VISC 200 2-D Animation 3 Credits
Prerequisites: VISC 115. Provides students with a solid introduction to digital 2D Animation. Primary emphasis will be placed on the various tools and techniques needed to create 2D movies. Strong emphasis will be placed on effective information delivery as well as cutting edge design, both for the web and other media.

### VISC 201 Electronic Imaging 3 Credits
Prerequisites: VISC 101 and VISC 102. Examines the area of raster image editing and current electronic darkroom software packages. Experience with the digital imaging environment includes calibrating scanning processes, digital camera input, manipulating images in black and white and color, working with retouching for advertising, illustrating text, and working with various output devices. Digital color spaces as they relate to various output devices will be covered. Calibration for 4-color separations and prepress processes will be discussed as well as preparing images properly for the web.

### VISC 202 Special Projects I 3 Credits
Prerequisites: VISC 114. Provides advanced instruction in specific areas of subject interest or in areas where there is a need to strengthen skills. Requires performance and completed work to be portfolio quality and reflect applicability to the main areas of the program. Suggested projects may include annual reports, catalogs, newsletters, menus, direct mail and/or other multi-piece or multi-page communications. Also may include actual community or non-profit projects.

### VISC 203 Independent Study 3 Credits
Prerequisites: VISC 114. Provides advanced students with opportunities to design projects for specified areas of interest. Requires the project plan to be approved by the instructor. Restricts work to student program area and requires it to be portfolio quality.

### VISC 205 Business Practices for Visual Artists 3 Credits
Prerequisites: VISC 101 and VISC 115. Examines legal and business issues affecting the professional visual artist.

### VISC 206 Interdisciplinary Studies 3 Credits
Prerequisites: VISC 210 or VISC 217 or PHOT 109. Offers students the opportunity to complete selected projects while working in a team environment with students of other disciplines. Simulates situations found in industry.

### VISC 207 Portfolio Preparation 3 Credits
Prerequisites: Program Advisor Approval. Provides advanced facilitation focusing on the students' final preparation for the workforce. Requires an evaluation and portfolio development plan to be approved by the instructor. Finalizes project work demonstrating acquired knowledge and skills, along with resume and cover letter, for presentation to prospective employers. Also provides students with the opportunity to use one credit for field of study.

### VISC 209 3D Rendering and Animation I 3 Credits
Prerequisites: VISC 201. Examines the virtual world of 3D and how it can be applied as an illustration and animation element in multimedia. Students will explore animation, modeling, rendering, animation, and camera and lighting techniques.

### VISC 210 Web Design II 3 Credits
Prerequisites: VISC 102 and VISC 110. Further focuses on the tools, techniques, and strategies for web site design, architecture, navigation, language, and production. Explores more in depth the methods for creating successful web sites from concept to implementation. Examines the process of integrating text, graphics, audio, and video for effective communication of information.

### VISC 211 Interactive Media II 3 Credits
Prerequisites: VISC 103 and VISC 201. Further explores various software programs involved in creating multimedia presentations, digital movies, digital animation and scripting.

### VISC 212 3-D Rendering and Animation II 3 Credits
Prerequisites: VISC 209. Further examines the virtual world of 3D and how it can be applied as an illustration and animation element in multimedia. Students will expand on navigation, modeling, rendering, animation, and camera and lighting techniques.

### VISC 213 Advanced Electronic Imaging 3 Credits
Prerequisites: VISC 201. The creation of the electronic image from digital imaging and scanning devices is further investigated. Advanced Adobe Photoshop illustration techniques are taught. Other software such as Adobe Dimensions and Fractal Painter are introduced. Students will work with both raster and vector software to create final output. An emphasis in final output is given to portfolio projects that are in the print, web, and film media.

### VISC 217 Graphic Design II 3 Credits
Prerequisites: VISC 103, VISC 114, and VISC 116. Provides intermediate instruction in design for communication primarily for print media. Further explores design theory by applying concepts to achieve meaningful marketing and advertising results. Produces samples for student portfolios, which may include elements or comprehensive projects appropriate to trade/industrial advertising, brochures, flyers, pamphlets, posters, direct mail and/or consumer magazine advertising, branding, etc.

### VISC 218 Digital Production 3 Credits
Prerequisites: VISC 114. Addresses the issues of electronic prepress (preparing electronic files for digital production). Topics covered include the tasks of prepress, paper knowledge, the entire printing production process (complete with requirements of the process) and electronic file management. A strong emphasis is placed on prepress terminology and jargon.

### VISC 219 Graphic Design III 3 Credits
Prerequisites: VISC 201 and VISC 217. Provides advanced instruction and experience with design projects/branding identity, which communicate a common theme or campaign through several different media—magazine, billboard, radio, television, direct mail, brochures, point of purchase, sales promotions, and/or package design, etc. Produces samples for student portfolios.

### VISC 280 Co-op/Internship 1-6 Credits
Prerequisite: Advisor's Approval. Students work at job sites that are specifically related to career objectives. Provides on-the-job experience while earning course credit.

### WELD 100 Welding Processes 3 Credits
Prerequisites: None. Provides general study of oxy-fuel, shielded metal arc, gas tungsten arc, gas metal arc, submerged arc, plasma arc, resistance, flash and upset, friction, electron beam, and laser welding processes. Covers equipment, techniques, electrodes, fuel gases and/or shielding gases, weld joint design, advantages and limitations, process applications, process variables and operational costs.

### WELD 101 Gas Welding I 3 Credits
Prerequisites: None. Introduces basic oxy-fuel brazing, soldering and braze welding. Includes detailed study of the techniques of making a strong braze or solder joint. Demonstrates proper technique for making a good braze weld joint on mild steel and cast iron. Provides additional background essential to performing maintenance and repair in industry.

### WELD 103 ARC Welding I 3 Credits
Prerequisites: None. Covers the welding of ferrous metals and alloys utilizing metallic manual arc welding methods. Includes procedures in joint design using "T" joint, lap joint, and butt joint designs. Covers single pass and multi-pass techniques. Emphasizes safety hazards and safe practices in arc welding.

### WELD 105 Welding Equipment and Electrical Maintenance 3 Credits
Prerequisites: None. Focuses on the design of oxy-fuel welding and cutting equipment and electric arc welding and cutting equipment. Enables students to perform troubleshooting on the equipment and
WELD 107 Welding Troubleshooting 3 Credits
Prerequisites: WELD 101 or WELD 109. Covers evaluation of weldments, welding procedures and tolerances, joint design and alignment. Also covers weld defects caused by improper equipment settings, equipment failure, base metal, improper filler metal, and improper shielding of welds. Emphasis will be placed on weldability of metals.

WELD 108 Shielded Metal Arc Welding I 3 Credits
Prerequisites: None. Provides students with knowledge of shielded metal arc welding operations and equipment. Provides extensive practice time to produce the skills to make satisfactory welds with this process. Emphasizes safety hazards and safe practices in arc welding.

WELD 109 Oxy-Fuel Gas Welding and Cutting 3 Credits
Prerequisites: None. Offers basic instruction in oxy-fuel welding with emphasis on welding techniques in flat, horizontal, vertical, and overhead positions. Includes brazing, soldering and flame cutting. Focuses on safety hazards and safe practices in oxy-fuel welding and cutting.

WELD 115 Shop Practices I 1 Credit
Prerequisites: None. Provides use of a shop to obtain basic welding skills using various types of welding processes.

WELD 116 Shop Practices II 1 Credit
Prerequisites: WELD 115. Continues open use of shop to practice various types of welding to improve operator skills to a higher level.

WELD 117 Shop Practices III 1 Credit
Prerequisites: WELD 116. Continues open use of shop to practice various types of welding to improve operator skills to an advanced level.

WELD 201 Special Welding Processes 3 Credits
Prerequisites: Advisor Approval. This is an advanced welding course that involves theory and hands-on practice with various welding processes such as FCAW, PAW, SAW, GTA and other welding processes. Presents welding processes with emphasis on use and orientation of the equipment.

WELD 202 ARC Welding II 3 Credits
Prerequisites: WELD 103, WELD 108, and WELD 109. Covers the welding of ferrous metals and alloys utilizing electric welding methods and techniques. Safety hazards and safe practices in arc welding are covered. Extensive practice in the v-groove butt welds in all positions, using a back-up strip, and low hydrogen electrodes in all positions are covered.

WELD 203 Pipe Welding I 3 Credits
Prerequisites: WELD 206. This course provides extensive practice in the preparation and welding of pipe in the 2G and 5G position, and information of preparation, methods of welding, and electrode and filler wires used.

WELD 204 Pipe Welding II 3 Credits
Prerequisites: WELD 108, WELD 206, and WELD 207. Provides extensive training in the preparation and welding of pipe in the 6G and 5G position. Includes information on preparation, method of welding, and electrodes and filler rods used.

WELD 205 Welding Codes, Specifications and Estimating 3 Credits
Prerequisites: Advisor Approval. Provides students with different types of welding codes and testing operations. Covers procedures, specifications, and information on filler materials, positions, post-heat and preheat treatment, backing strips, preparations of parent metal, cleaning, and defects. Introduces students to various welding processes used in the welding industry. Prepares students with a background in which will assist them in taking the American Welding Society Certified Welding Inspector exam. The AWS, ASME and other codes are discussed.

WELD 206 Shielded Metal Arc Welding II 3 Credits
Prerequisites: WELD 108. Covers SMAW welding equipment and products used to produce groove type butt and fillet welds. Provides extensive practice to develop the skills to achieve satisfactory welds of this type. Safety hazards and safe practices in arc welding are emphasized.

WELD 207 Gas Metal Arc (MIG) Welding 3 Credits
Prerequisites: None. Considers various gas metal welding (GMAW) processes including microwire, flux-core, inner shield, and submerged arc with emphasis on metal inert gas welding. Techniques of welding in all positions on various thicknesses of metal.

WELD 208 Gas Tungsten Arc (TIG) Welding 3 Credits
Prerequisites: None. Provides students with knowledge of the gas tungsten arc welding process. Includes detailed study of the techniques of making welds in all positions using the GTAW applications. Lectures and discussion provide additional background information essential to a qualified GTAW welder.

WELD 209 Welding Certification 3 Credits
Prerequisites: Advisor Approval. Prepares the student for certification in shielded metal arc, GTAW (Gas Tungsten Arc Welding), GMAW (Gas Metal Arc Welding) and other welding processes through study of the welding procedures and standards established by agencies such as the American Welding Society and the American Society of Mechanical Engineers.

WELD 210 Welding Fabrication I 3 Credits
Prerequisites: WELD 108, WELD 207 and IND 102. Provides for continued practice in hands-on fabrication of welded products. Include basic equipment used in fabrication.

WELD 211 Welding Fabrication II 3 Credits
Prerequisites: WELD 108, WELD 207 and IND 102. Provides opportunities for practice in hands-on fabrication of welded products. Include basic equipment used in fabrication.

WELD 271 Blueprint Reading for Welders 3 Credits
Prerequisite: None. Provides the basic concept of reading a fabrication blueprint and covers the different parts of the print. It also provides an understanding of welding symbols used in blueprint reading. Computations of basic measurements including fraction and metrics along with conversion from one to the other are also covered. This course is designed for beginning welders and fabricators, and anyone needing to understand basic fabrication and assembly blueprints.

WELD 272 Gas Metal (MIG) Welding II 3 Credits
Prerequisite: None. This course is an extension of the processes learned in WELD 207 consisting of various gas metal welding (GMAW) processes including microwire, flux-core, inner shield, and submerged arc with emphasis on metal inert gas welding. Techniques of welding in all positions on various thicknesses of metal.

WELD 273 Gas Tungsten Arc Welding 3 Credits
Prerequisite: None. Provides advanced skills and knowledge in Gas Tungsten Arc Welding. This course is designed for intermediate welders, auto service and body technicians, and individuals in the HVAC industry. Emphasizes safe practices in advanced Gas Tungsten Arc Welding.

WELD 274 Flux Core Arc Welding 3 Credits
Prerequisite: None. Covers Flux Core Arc Welding (FCAW) equipment and products used to produce groove and fillet welds. Provides extensive practice to develop the skills to achieve satisfactory welds in all positions, using self shielding and gas shielded wires. Provides the opportunity to achieve AWS qualification or certification. Safety hazards and safe practices in FCAW are emphasized.
### IVY TECH COMMUNITY COLLEGE GENERAL EDUCATION COURSES BY CATEGORY

#### COMMUNICATION
- COMM 101 Fundamentals of Public Speaking
- COMM 102 Intro to Interpersonal Communication
  - ENGL 111 English Composition
  - ENGL 112 Exposition and Persuasion
  - ENGL 211 Technical Writing

#### MATHEMATICS
- MATH 111 Intermediate Algebra (TC, AAS only)
- MATH 117 The Art of Geometry
- MATH 118 Concepts in Mathematics
- MATH 121 Geometry-Trigonometry
- MATH 126 Mathematics for Elementary Education II
- MATH 131 Algebra/Trigonometry I
- MATH 132 Algebra/Trigonometry II
- MATH 133 College Algebra with Analytic Geometry
  - MATH 134 Trigonometry
  - MATH 135 Finite Math
  - MATH 136 College Algebra
  - MATH 137 Trig with Analytic Geometry
  - MATH 200 Statistics
  - MATH 201 Brief Calculus I
  - MATH 202 Brief Calculus II
  - MATH 211 Calculus I
  - MATH 212 Calculus II

#### LIFE/PHYSICAL SCIENCES
- APHY 101 Anatomy & Physiology I
- APHY 102 Anatomy & Physiology II
- APHY 201 Advanced Human Physiology
- APHY 203 Human Anatomy & Physiology I
- APHY 204 Human Anatomy & Physiology II
- ASTR 101 Solar System Astronomy
- BIOL 100 Human Biology
- BIOL 101 Introductory Biology
- BIOL 105 Biology I
- BIOL 107 Biology II
- BIOL 120 Environmental Science
- BIOL 121 General Biology
- BIOL 201 General Microbiology
- BIOL 211 Microbiology I
  - CHEM 101 Introductory Chemistry I
  - CHEM 102 Introductory Chemistry II
  - CHEM 103 General Chemistry I
  - CHEM 104 General Chemistry II
  - CHEM 111 Chemistry I
  - CHEM 112 Chemistry II
  - CHEM 113 Introductory Organic & Biochemistry
  - CHEM 201 Organic Chemistry I
  - CHEM 202 Organic Chemistry II
  - PHYS 100 Technical Physics (TC, AAS only)
  - PHYS 101 Physics I
  - PHYS 102 Physics II
  - PHYS 103 Physics II
  - PHYS 201 General Chemistry
  - PHYS 202 General Physics
  - PHYS 203 General Physics
  - SCIN 100 Earth Science
  - SCIN 101 Science of Traditional & Alternative Energy
  - SCIN 111 Physical Science

#### SOCIAL/BEHAVIORAL SCIENCES
- ANTH 154 Cultural Anthropology
- ECON 101 Economics Fundamentals
- ECON 201 Principles of Macroeconomics
- ECON 202 Principles of Microeconomics
- GEOG 207 World Geography
- POLS 101 Intro to American Government and Politics
- POLS 112 State & Local Government
- POLS 201 Intro to Political Science
- POLS 211 Introduction to World Politics
- PSYC 101 Introduction to Psychology
- PSYC 102 Advanced Introduction to Psychology
  - PSYC 201 Lifespan Development
  - PSYC 205 Abnormal Psychology
  - PSYC 211 Research Methods in Psychology
  - PSYC 240 Human Sexuality
  - PSYC 260 Health Psychology
  - PSY 111 Introduction to Sociology
  - PSY 164 Intro to Multicultural Studies
  - PSY 245 Cultural Diversity
  - PSY 252 Social Problems
  - PSY 253 Introduction to Social Psychology
  - PSY 261 Sociology of Relationships & Families

#### HUMANITIES
- ARTH 101 Survey of Art and Culture I
- ARTH 102 Survey of Art and Culture II
- ARTH 110 Art Appreciation
- ENGL 202 Creative Writing
- ENGL 206 Intro to Literature
- ENGL 220 Intro to World Literature through the Renaissance
- ENGL 221 Intro to World Literature after the Renaissance
- ENGL 222 American Literature to 1865
- ENGL 223 American Literature after 1865
- ENGL 227 World Fiction
- FREN 101 French I
- FREN 102 French II
- HIST 101 Survey of American History I
  - HIST 102 Survey of American History II
  - HIST 111 World Civilization I
  - HIST 112 World Civilization II
  - HUMA 100 Theatre Appreciation
  - HUMA 118 Music Appreciation
  - HUMA 201 Humanities: Prehistoric through the Renaissance
  - HUMA 202 Humanities: Renaissance to Present
  - PHIL 101 Introduction to Philosophy
  - PHIL 102 Introduction to Ethics
  - PHIL 220 Philosophy of Religion
  - SPAN 101 Spanish Level I
  - SPAN 102 Spanish Level II

#### LIFE SKILLS
- IVYT 101 First Year Seminar
- IVYT 102 Information Studies and Research Skills
- IVYT 103 Health and Wellness
- IVYT 104 Critical Thinking
- IVYT 105 Managing Personal Finances
  - IVYT 106 Career Exploration
  - IVYT 107 Professional Presence
  - IVYT 108 Academic Project and Portfolio Management
  - IVYT 109 Online Learning Technologies
  - IVYT 110 Transfer Success
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- Criminal Justice (via distance)
- Design Technology
- Education
- Electronics and Computer Technology
- General Studies
- Health Information Technology
- Human Services
- Human Services (via distance)
- Kinesiology
- Liberal Arts
- Library Technical Assistant (via distance)
- Nursing
- Paralegal Studies
- Paralegal Studies (via distance)
- Paramedic Science
- Radiation Therapy
- Respiratory Care
- Early Childhood Education
- Early Childhood Education (via distance)
- Health Care Support
- Hospitality Administration
- Human Services
- Human Services (via distance)
- Industrial Technology
- Information Security
- Interior Design
- Manufacturing, Production and Operations (via distance)
- Medical Assisting
- Office Administration
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Paramedic Science
- Surgical Technology
- Visual Communications

### Technical Certificate
- Accounting
- Business Administration
- Central Services Technician
- Computer Information Systems
- Dental Assisting
- Early Childhood Education
- Early Childhood Education (via distance)
- Hospitality Administration
- Human Services
- Industrial Technology
- Manufacturing, Production and Operations (via distance)
- Medical Assisting
- Office Administration
- Practical Nursing

### Certificate
- Accounting
- Advanced Manufacturing
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Criminal Justice
- Design Technology
- Design Technology (via distance)

### CONNERSVILLE CAMPUS
- Associate of Applied Science
- Accounting
- Accounting (via distance)
- Advanced Manufacturing
- Agriculture
- Business Administration
- Business Administration (via distance)
- Computer Information Systems
- Computer Information Systems (via distance)
- Computer Information Technology
- Criminal Justice
- Design Technology
- Design Technology (via distance)
- Early Childhood Education
- Early Childhood Education (via distance)
- Health Care Support
- Hospitality Administration
- Human Services
- Human Services (via distance)
- Industrial Technology
- Information Security
- Interior Design
- Manufacturing, Production and Operations (via distance)
- Medical Assisting
- Office Administration
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Paramedic Science
- Surgical Technology
- Visual Communications

### Information Security
- Office Administration

### Associate of Science
- Accounting
- Agriculture
- Business Administration
- Computer Information Systems
- Criminal Justice
- Criminal Justice (via distance)
- Design Technology
- Early Childhood Education
- Education
- Education (via distance)
- General Studies
- Hospitality Administration
- Human Services
- Human Services (via distance)
- Interior Design
- Library Technical Assistant (via distance)
- Mechanical Engineering Technology
- Nursing
- Paralegal Studies (via distance)
- Paramedic Science

### Associate of Arts
- Liberal Arts

### COLUMBUS CAMPUS
- Associate of Applied Science
- Accounting
- Accounting (via distance)
- Advanced Manufacturing
- Agriculture
- Business Administration
- Business Administration (via distance)
- Computer Information Systems
- Computer Information Systems (via distance)
- Computer Information Technology
- Criminal Justice
- Design Technology
- Design Technology (via distance)
### EAST CHICAGO CAMPUS

**Associate of Applied Science**
- Accounting
- Accounting (via distance)
- Automotive Technology
- Business Administration (via distance)
- Computer Information Systems (via distance)
- Construction Technology
- Design Technology
- Design Technology (via distance)
- Early Childhood Education (via distance)
- Health Care Support
- Hospitality Administration
- Human Services (via distance)
- Industrial Technology
- Manufacturing, Production & Operations (via distance)
- Mortuary Science
- Office Administration
- Office Administration (via distance)
- Paralegal Studies (via distance)

**Technical Certificate**
- Automotive Technology
- Construction Technology
- Design Technology
- Hospitality Administration
- Industrial Technology
- Manufacturing, Production & Operations (via distance)
- Office Administration

**Certificate**
- Accounting
- Automotive Technology
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Industrial Technology
- Office Administration

**Associate of Arts**
- Liberal Arts

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### ELKHART CAMPUS

**Associate of Applied Science**
- Accounting
- Accounting (via distance)
- Business Administration
- Business Administration (via distance)
- Computer Information Systems
- Computer Information Systems (via distance)
- Computer Information Technology
- Design Technology
- Design Technology (via distance)
- Early Childhood Education (via distance)
- Electronics and Computer Technology
- Human Services (via distance)
- Manufacturing, Production and Operations (via distance)
- Medical Assisting
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Recreational Vehicle Service Technology

**Technical Certificate**
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Early Childhood Education (via distance)
- Manufacturing, Production and Operations (via distance)
- Medical Assisting

**Certificate**
- Accounting
- Automotive Technology
- Advanced Manufacturing
- Automotive Technology
- Biotechnology
- Building Construction Management
- Business Administration
- Business Administration (via distance)
- Computer Information Systems

**Associate of Arts**
- Liberal Arts

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### EVANSTON CAMPUS

**Associate of Applied Science**
- Accounting
- Accounting (via distance)
- Advanced Manufacturing
- Automotive Technology
- Biotechnology
- Building Construction Management
- Business Administration
- Business Administration (via distance)
- Computer Information Systems
- Medical Assisting
Certificate
Accounting
Advanced Manufacturing

Certificate
Accounting
Advanced Manufacturing

Associate of Arts
Liberal Arts

FORT WAYNE CAMPUS

Associate of Applied Science
Accounting
Accounting (via distance)
Advanced Manufacturing
Automotive Technology
Aviation Technology

Building Construction Management
Business Administration
Business Administration (via distance)
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Construction Technology
Criminal Justice
Design Technology
Design Technology (via distance)
Early Childhood Education
Early Childhood Education (via distance)
Electronics and Computer Technology
Hospitality Administration
Human Services (via distance)
Industrial Technology
Manufacturing, Production & Operations (via distance)
Medical Assisting
Office Administration
Office Administration (via distance)
Paralegal Studies (via distance)
Paramedic Science
Public Safety
Surgical Technology
Visual Communications

Technical Certificate
Accounting
Automotive Technology
Business Administration
Early Childhood Education
Early Childhood Education (via distance)
Hospitality Administration
Industrial Technology
Manufacturing, Production & Operations (via distance)
Medical Assisting
Office Administration
Office Administration (via distance)
Paralegal Studies (via distance)
Pre-Engineering

Technical Certificate
Accounting
Automotive Technology
Computer Information Systems
Construction Technology
Design Technology
Design Technology (via distance)
Early Childhood Education
Early Childhood Education (via distance)
Health Care Support
Hospitality Administration
Human Services (via distance)
Industrial Technology
Manufacturing, Production & Operations (via distance)
Medical Assisting
Office Administration
Office Administration (via distance)
Paralegal Studies (via distance)
Public Safety
Therapeutic Massage
### Certificate
- Accounting
- Automotive Technology
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Construction Technology
- Hospitality Administration
- Industrial Technology
- Office Administration

### Associate of Science
- Building Construction Management
- Business Administration
- Computer Information Systems
- Criminal Justice
- Criminal Justice (via distance)
- Design Technology
- Early Childhood Education
- Education
- General Studies
- Human Services
- Human Services (via distance)
- Industrial Technology
- Manufacturing, Production & Operations (via distance)
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Public Safety

### Technical Certificate
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Early Childhood Education
- Early Childhood Education (via distance)
- Hospitality Administration
- Industrial Technology
- Manufacturing, Production & Operations (via distance)
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Practical Nursing

### Certificate
- Accounting
- Automotive Technology
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Design Technology (via distance)
- Early Childhood Education
- Early Childhood Education (via distance)
- Health Care Support
- Hospitality Administration
- Human Services (via distance)
- Industrial Technology
- Manufacturing, Production & Operations (via distance)
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Respiratory Care

### Associate of Arts
- Liberal Arts

### Technical Certificate
- Accounting
- Practical Nursing

### Associate of Science
- Business Administration
- Electronics and Computer Technology
- Nursing

### Certificate
- Accounting
- Automotive Technology
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Associate of Applied Science
- Business Administration
- Computer Information Systems
- Computer Information Systems (via distance)

### Associate of Science
- Accounting
- Advanced Manufacturing
- Automotive Technology
- Business Administration
- Business Administration (via distance)
- Computer Information Systems
- Computer Information Systems (via distance)

### Associate of Arts
- Liberal Arts

### Technical Certificate
- Accounting
- Practical Nursing

### Associate of Science
- Business Administration
- Electronics and Computer Technology
- Nursing
Computer Information Technology
Criminal Justice
Design Technology
Design Technology (via distance)
Electronics & Computer Technology
Hospitality Administration
Machine Tool Technology
Logistics Management
Manufacturing, Production and Operations (via distance)
Medical Assisting
Mortuary Science
Office Administration (via distance)
Paralegal Studies
Paralegal Studies (via distance)
Public Safety
Surgical Technology
Visual Communications

**Technical Certificate**
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Technology
Design Technology
Early Childhood Education
Early Childhood Education (via distance)
Industrial Technology
Manufacturing, Production and Operations (via distance)
Medical Assisting
Office Administration
Practical Nursing

**Certificate**
Accounting
Advanced Manufacturing
Automotive Technology
Computer Information Systems
Computer Information Technology

Associate of Fine Arts
Fine Arts
Visual Communications

Associate of Science
Accounting
Automotive Technology
Biotechnology
Business Administration
Computer Information Systems
Criminal Justice
Criminal Justice (via distance)
Design Technology
Early Childhood Education
Education
Electrical Engineering Technology
Electronics and Computer Technology
General Studies
Health Information Technology
Hospitality Administration
Homeland Security and Emergency Management
Human Services
Imaging Sciences
Liberal Arts
Library Technical Assistant (via distance)
Mechanical Engineering Technology
Nursing
Office Administration
Paralegal Studies (via distance)
Paramedic Science
Respiratory Care
Transportation, Distribution and Logistics
Visual Communications

**Associate of Arts**
Liberal Arts

**Technical Certificate**
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Construction Technology
Dental Assisting
Design Technology
Early Childhood Education
Early Childhood Education (via distance)
Industrial Technology
Medical Assisting
Office Administration

**Technical Certificate**
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Technology
Construction Technology
Dental Assisting
Design Technology
Early Childhood Education
Early Childhood Education (via distance)
Industrial Technology
Medical Assisting
Office Administration

**Technical Certificate**
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Technology
Construction Technology
Dental Assisting
Design Technology
Early Childhood Education
Early Childhood Education (via distance)
Industrial Technology
Medical Assisting
Office Administration

**KOKOMO CAMPUS**
Associate of Applied Science
Practical Nursing
Public Safety

Certificate
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Technology
Construction Technology
Industrial Technology
Office Administration

Associate of Science
Accounting
Agriculture
Business Administration
Computer Information Systems
Computer Information Technology
Design Technology
Early Childhood Education
Health Care Support
Human Services
Industrial Technology
Liberal Arts
Library Technical Assistant
Nursing
Paralegal Studies

Associate of Arts
Liberal Arts

LAFAYETTE CAMPUS

Associate of Applied Science
Accounting
Accounting (via distance)
Business Administration
Business Administration (via distance)
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Design Technology
Design Technology (via distance)
Early Childhood Education (via distance)
Health Care Support
Human Services (via distance)
Industrial Technology
Liberal Arts
Library Technical Assistant (via distance)
Nursing
Paralegal Studies (via distance)

Technical Certificate
Accounting
Business Administration
Early Childhood Education (via distance)
Industrial Technology
Manufacturing, Production & Operations (via distance)
Medical Assisting
Office Administration (via distance)
Paralegal Studies (via distance)

Certificate
Accounting
Computer Information Systems
Computer Information Technology
Health Care Support
Industrial Technology

Associate of Science
Business Administration

Computer Information Systems
Criminal Justice (via distance)
Design Technology
Education
General Studies
Human Services (via distance)
Liberal Arts
Library Technical Assistant (via distance)
Nursing
Paralegal Studies (via distance)
Paralegal Studies
Paralegal Studies (via distance)
Surgical Technology
Sustainable Energy

Technical Certificate
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Technology
Dental Assisting
Design Technology
Early Childhood Education
Engineering Technology
Health Information Technology
Human Services
Human Services (via distance)
Industrial Technology
Liberal Arts
Library Technical Assistant (via distance)
Mechanical Engineering Technology
Medical Assisting
Paralegal Studies
Paralegal Studies (via distance)
Respiratory Care
Visual Communications

Associate of Arts
Liberal Arts

LOGANSPORT CAMPUS

Associate of Applied Science
Accounting (via distance)
Accounting
Business Administration
Business Administration (via distance)
Business Administration (via distance)
Business Administration
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Systems
Criminal Justice
Design Technology (via distance)
Early Childhood Education
Early Childhood Education (via distance)
Early Childhood Education (via distance)
Human Services
Human Services (via distance)
Industrial Technology
Liberal Arts
Library Technical Assistant (via distance)
Medical Assisting
Nursing
Office Administration
Paralegal Studies
Paralegal Studies (via distance)

Associate of Arts
Liberal Arts

MADISON CAMPUS

Associate of Applied Science
Accounting
Accounting (via distance)
Accounting
Business Administration
Business Administration
Business Administration (via distance)
Business Administration (via distance)
Business Administration (via distance)
Computer Information Systems
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<th>Medical Assisting</th>
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<td>Office Administration (via distance)</td>
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<td><strong>Technical Certificate</strong></td>
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<td>Business Administration</td>
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<td>Liberal Arts</td>
</tr>
<tr>
<td>Computer Information Systems</td>
<td>Library Technical Assistant (via distance)</td>
</tr>
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<td>Computer Information Technology</td>
<td>Nursing</td>
</tr>
<tr>
<td>Construction Technology</td>
<td>Paralegal Studies</td>
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<tr>
<td>Criminal Justice</td>
<td>Paralegal Studies (via distance)</td>
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<tr>
<td>Design Technology</td>
<td>Physical Therapist Assistant</td>
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<td>Design Technology (via distance)</td>
<td>Respiratory Care</td>
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<td><strong>Associate of Arts</strong></td>
</tr>
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<td>Early Childhood Education (via distance)</td>
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<td><strong>NEW CASTLE CAMPUS</strong></td>
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<td>Nursing</td>
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<td>Manufacturing, Production &amp; Operations (via distance)</td>
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<td>Public Safety</td>
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<td>Business Administration</td>
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<td>Computer Information Technology</td>
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<td>Construction Technology</td>
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<td>Early Childhood Education</td>
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<td>Criminal Justice</td>
<td>Early Childhood Education (via distance)</td>
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<tr>
<td>Design Technology</td>
<td>Hospitality Administration</td>
</tr>
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<td>Human Services</td>
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<tr>
<td>Early Childhood Education</td>
<td>Industrial Technology</td>
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<td>Library Technical Assistant</td>
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<td>Electronics &amp; Computer Technology</td>
<td>Nursing</td>
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<td>Hospitality Administration</td>
<td>Paralegal Studies</td>
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<td>Human Services</td>
<td>Paralegal Studies (via distance)</td>
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<tr>
<td>Human Services (via distance)</td>
<td>Physical Therapist Assistant</td>
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<tr>
<td>Industrial Technology</td>
<td>Respiratory Care</td>
</tr>
<tr>
<td>Manufacturing, Production &amp; Operations (via distance)</td>
<td><strong>Associate of Science</strong></td>
</tr>
<tr>
<td>Medical Assisting</td>
<td>Agriculture</td>
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<td>Business Administration</td>
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<td>Computer Information Systems</td>
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<tr>
<td>Public Safety</td>
<td>Criminal Justice</td>
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<tr>
<td><strong>Associate of Science</strong></td>
<td>Criminal Justice (via distance)</td>
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</table>
**SELLERSBURG CAMPUS**

**Associate of Applied Science**
- Accounting
- Accounting (via distance)
- Advanced Manufacturing
- Business Administration
- Business Administration (via distance)
- Computer Information Systems
- Computer Information Technology
- Criminal Justice
- Design Technology
- Design Technology (via distance)
- Early Childhood Education
- Early Childhood Education (via distance)
- Human Services
- Human Services (via distance)
- Industrial Technology
- Manufacturing, Production & Operations (via distance)
- Medical Assisting
- Medical Laboratory Technology
- Office Administration
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Paralegal Studies (via distance)
- Respiratory Care
- Respiratory Care
- Visual Communications

**Technical Certificate**
- Accounting
- Business Administration
- Computer Information Systems
- Computer Information Technology
- Design Technology
- Early Childhood Education
- Education
- General Studies
- Human Services
- Imaging Sciences

**SOUTH BEND CAMPUS**

**Associate of Applied Science**
- Accounting
- Accounting (via distance)
- Advanced Manufacturing
- Business Administration
- Business Administration (via distance)
- Computer Information Systems
- Computer Information Technology
- Criminal Justice
- Design Technology
- Early Childhood Education
- Education
- General Studies
- Human Services
- Human Services (via distance)
- Liberal Arts
- Library Technical Assistant (via distance)
- Medical Assisting
- Medical Laboratory Technology
- Office Administration
- Office Administration (via distance)
- Paralegal Studies (via distance)
- Paralegal Studies (via distance)
- Respiratory Care
- Respiratory Care
- Visual Communications
Business Administration
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Criminal Justice
Design Technology
Design Technology (via distance)
Early Childhood Education
Early Childhood Education (distance)
Electronics and Computer Technology
Hospitality Administration
Human Services
Human Services (via distance)
Interior Design
Industrial Technology
Manufacturing, Production and Operations (via distance)
Medical Assisting
Medical Laboratory Technology
Office Administration
Office Administration (via distance)
Paralegal Studies
Paralegal Studies (via distance)
Public Safety
Visual Communications

**Technical Certificate**
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Industrial Technology
Office Administration

**Associate of Fine Arts**
Visual Communications

**Associate of Science**
Accounting
Biotechnology
Business Administration
Computer Information Systems
Computer Information Systems (via distance)
Criminal Justice
Criminal Justice (via distance)
Dental Hygiene
Design Technology
Education
Electrical Engineering Technology
Electronics and Computer Technology
General Studies
Human Services
Human Services (via distance)
Industrial Technology
Interior Design
Liberal Arts
Library Technical Assistant (via distance)
Nursing
Paralegal Studies
Paralegal Studies (via distance)
Paramedic Science
Respiratory Care
Visual Communications

**Associate of Arts**
Liberal Arts

**TELL CITY CAMPUS**
Associate of Applied Science
Office Administration

**Technical Certificate**
Industrial Technology
Office Administration

**TERRE HAUTE CAMPUS**
Associate of Applied Science
Accounting
Accounting (via distance)
Advanced Manufacturing
Agriculture
Automotive Technology
Biotechnology
Business Administration
Business Administration (via distance)
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Design Technology
Design Technology (via distance)
Early Childhood Education
Early Childhood Education (via distance)
Electronics and Computer Technology
Human Services
Industrial Technology
Manufacturing, Production and Operations (via distance)
Medical Assisting
Medical Laboratory Technology
Office Administration
Office Administration (via distance)
Paralegal Studies
Paralegal Studies (via distance)
Paramedic Science
Surgical Technology
Visual Communications
Technical Certificate
Accounting
Automotive Technology
Computer Information Systems
Computer Information Technology
Early Childhood Education
Early Childhood Education (via distance)
Industrial Technology
Manufacturing, Production and Operations (via distance)
Medical Assisting
Office Administration
Practical Nursing

Certificate
Accounting
Advanced Manufacturing
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Technology
Construction Technology
Industrial Technology
Office Administration

Associate of Arts
Liberal Arts

VALPARAISO CAMPUS

Associate of Applied Science
Accounting
Accounting (via distance)
Advanced Manufacturing
Business Administration
Business Administration (via distance)
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Criminal Justice
Design Technology
Design Technology (via distance)
Early Childhood Education (via distance)
Health Care Support
Human Services (via distance)
Industrial Technology
Manufacturing, Production & Operations (via distance)
Office Administration (via distance)
Paralegal Studies
Paralegal Studies (via distance)
Pre-Engineering

Associate of Science
Accounting
Advanced Manufacturing
Business Administration
Business Administration (via distance)
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Design Technology
Human Services (via distance)
Liberal Arts
Library Technical Assistant (via distance)
Paralegal Studies
Paralegal Studies (via distance)

Associate of Arts
Liberal Arts

WABASH CAMPUS

Associate of Applied Science
Business Administration
Computer Information Technology
Industrial Technology

Technical Certificate
Business Administration
Computer Information Systems
Computer Information Technology

Design Technology
Human Services
Industrial Technology
Manufacturing, Production & Operations (via distance)
Practical Nursing

Certificate
Accounting
Business Administration
Computer Information Systems
Computer Information Technology
Industrial Technology

Associate of Science
Accounting
Advanced Manufacturing
Business Administration
Business Administration (via distance)
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Design Technology
General Studies
Human Services (via distance)
Liberal Arts
Library Technical Assistant (via distance)
Paralegal Studies
Paralegal Studies (via distance)
Pre-Engineering

Associate of Arts
Liberal Arts
Technical Certificate
Business Administration
Computer Information Technology
Industrial Technology
Practical Nursing

Associate of Science
Business Administration
Industrial Technology

WARSZAWA CAMPUS

Associate of Applied Science
Accounting (via distance)
Agriculture
Business Administration
Business Administration (via distance)
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Design Technology (via distance)
Early Childhood Education (via distance)
Human Services (via distance)
Industrial Technology
Manufacturing, Production and Operations (via distance)
Medical Assisting
Office Administration (via distance)
Paralegal Studies (via distance)

Technical Certificate
Accounting
Business Administration
Computer Information Systems
Computer Information Technology
Early Childhood Education
Early Childhood Education (via distance)
Manufacturing, Production and Operations (via distance)
Medical Assisting

Certificate
Accounting
Automotive Technology
Business Administration
Computer Information Systems
Computer Information Technology
Industrial Technology
Office Administration

Associate of Science
Agriculture
Business Administration
Computer Information Systems
Computer Information Systems (via distance)
Computer Information Technology
Computer Information Technology (via distance)
Criminal Justice (via distance)
General Studies
Human Services
Human Services (via distance)
Liberal Arts
Library Technical Assistant (via distance)
Paralegal Studies (via distance)

Associate of Arts
Liberal Arts
NORTHWEST REGION

VALTIERRA, JOSE GUADALUPE, Chancellor; BA, Purdue University; MS, JD, Indiana University
THOSTESEN, DAWN, Executive Director of Finance; BS, MS, College of New Jersey
GONZALEZ, R. LOUIE, Vice Chancellor/Dean, East Chicago; BS, Calumet College of Saint Joseph; MPA, Indiana University
HAKLIN, DELORES, Vice Chancellor/Dean, Valparaiso; BA, Simpson College; MS, St. Francis College; PhD, Indiana State University
HUDDLESTON, JERRY L., Vice Chancellor/Dean, Michigan City; BS, MA, Ball State University
HALIK, DEBORAH A., Vice Chancellor of Academic Affairs; BS, Calumet College of Saint Joseph; MS, Purdue University; PhD, Indiana State University
HOWARD, R. KEITH, Vice Chancellor of Student Affairs; BA, DePauw University; MPA, ABD, Indiana University
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WYNKEN, MESHELE G., Assistant Professor in Hospitality Administration, Fort Wayne; RD, Saint Francis Medical Center; AA, Ivy Tech State College; BS, Illinois State University
YOUSE, DEBRA, Assistant Professor in Liberal Arts and Sciences, Fort Wayne; MA, Bowling Green State University; BS, Baldwin Wallace College

**LAFAYETTE REGION**

BATE, DAVID, Chancellor; AS, Vincennes University; BS, Greenville College; MS, PhD, Illinois State University
ROSWORSKI, TODD E., Vice Chancellor of Academic Affairs and Assistant Professor; BA, MS, MS Ed, PhD, Purdue University
LAW, JOHN, Vice Chancellor of Student Affairs, Lafayette; BS, MS, Southern Illinois University; EdD, Indiana University

**FACULTY**

ABEL, CINDY A., Assistant Professor in Medical Assisting, Lafayette; AAS, Ivy Tech State College; BS, Indiana
COOPER, COMBS, COMBS, COGHILL, CARRILLO, BUNNING, BREWER, University; BALACHANDER, University; ADDISON, DELAPLANE, DEADMAN, College, Purdue; MS, PhD, University of Michigan
BALACHANDER, Malathi, Associate Professor in Chemistry, Department Chair, Math and Sciences, Lafayette; BS, MS, PhD, University of Delhi, Delhi, India.
BAUTE, AARON, Instructor in Business Administration, Lafayette; BS, Indiana Wesleyan University; MBA, Purdue University
BAWA, SATISH, Associate Professor in Business Administration, Lafayette; BA, Delhi University; M.BA, Xavier University
BEHR, LARA B., Faculty Fellow in English, Lafayette, BA, California State University-Northridge, MS, Purdue University
BERRY, DAVID C., Associate Professor in History, Dean, School of Liberal Arts and Sciences, Lafayette; BS, Mercer University; MA, Georgia State University-Atlanta, PhD, University of Phoenix
BOLINGER, CINDY A., Assistant Instructor in Medical Assisting, Lafayette; AAS, Ivy Tech Community College
BOWERS, D. SCOTT, Assistant Professor in English, Lafayette; BS and MA, Purdue University
BREWER, JOSHUA A., Assistant Professor in English, Lafayette; BA, Lipscomb University; MA, University of Miami, Coral Gables
BRODTSKY, JANET J., Assistant Professor in Life Sciences, Program Chair, Lafayette; BA, Clark University; MS, Purdue University
BUNNING, ALAN R., Assistant Professor in Computer Information Technology, Lafayette; BS, Purdue University
BUTLER, KELLEY M., Instructor in Accounting, Lafayette; BS Oral Roberts University; MS Indiana University
CARRILLO, MORGAN J., Instructor in Paralegal Studies, Program Chair, Lafayette; BA, JD Indiana University
COGHILL, WILLIAM M., Schools of Education and Public and Social Services, Dean and Assistant Professor, Lafayette; BA, MS, Purdue University
COMBS, JONATHAN D., Assistant Professor in Design Technology, Lafayette; BS, Purdue University
COMBS, STEVEN B., Professor, Dean, School of Applied Science and Engineering Technology, Lafayette; BS, MS Murray State University; PhD, Indiana State University
COOPER, REED J., Assistant Professor in Automotive Technology, Lafayette; BS, Indiana Wesleyan University
CREE, CHAD V., Assistant Professor in Computer Information Technology, Lafayette; BS, MS, MA, Ball State University
CUFFMAN, C. MICHAEL, Associate Professor in Communication, Program Chair, Lafayette; BA, Cedarville College, MA, Bowling Green State University
DEADMAN, ROBERT, Assistant Professor in Business, Dean, Lafayette; AAS, BS, Purdue University; MSM-IT, Colorado Technical University
DELAPLANE, BRUCE L., Assistant Professor in Elementary/Secondary Education, Program Chair, Lafayette; BS, Ball State University; MS, Purdue University
DOLK, KAREN L., Professor in Nursing, Department Chair, Lafayette; BSN, University of Pittsburgh; MSN, Case Western Reserve University
DYE, DEBORAH K., Instructor in Nursing, Lafayette; AS, Ivy Tech State College; BSN, Indiana University

Wesleyan University

ADISON, PAUL, Professor in Computer Information Systems, Computer Information Systems and Computer Information Technology Program Chair, Lafayette; BA, Indiana University; MS, Purdue University
ALEXANDER, STANLEY W., Associate Professor in Psychology, Lafayette; BA, Cornell University; Med, Boston College; PhD, University of Michigan
BALCHANDER, Malathi, Associate Professor in Chemistry, Department Chair, Math and Sciences, Lafayette; BS, MS, PhD, University of Delhi, Delhi, India.
BAUTE, AARON, Instructor in Business Administration, Lafayette; BS, Indiana Wesleyan University; MBA, Purdue University
BAY, SATISH, Associate Professor in Business Administration, Lafayette; BA, Delhi University; M.BA, Xavier University
BEHR, LARA B., Faculty Fellow in English, Lafayette, BA, California State University-Northridge, MS, Purdue University
BERRY, DAVID C., Associate Professor in History, Dean, School of Liberal Arts and Sciences, Lafayette; BS, Mercer University; MA, Georgia State University-Atlanta, PhD, University of Phoenix
BOLINGER, CINDY A., Assistant Instructor in Medical Assisting, Lafayette; AAS, Ivy Tech Community College
BOWERS, D. SCOTT, Assistant Professor in English, Lafayette; BS and MA, Purdue University
BREWER, JOSHUA A., Assistant Professor in English, Lafayette; BA, Lipscomb University; MA, University of Miami, Coral Gables
BRODTSKY, JANET J., Assistant Professor in Life Sciences, Program Chair, Lafayette; BA, Clark University; MS, Purdue University
BUNNING, ALAN R., Assistant Professor in Computer Information Technology, Lafayette; BS, Purdue University
BUTLER, KELLEY M., Instructor in Accounting, Lafayette; BS Oral Roberts University; MS Indiana University
CARRILLO, MORGAN J., Instructor in Paralegal Studies, Program Chair, Lafayette; BA, JD Indiana University
COGHILL, WILLIAM M., Schools of Education and Public and Social Services, Dean and Assistant Professor, Lafayette; BA, MS, Purdue University
COMBS, JONATHAN D., Assistant Professor in Design Technology, Lafayette; BS, Purdue University
COMBS, STEVEN B., Professor, Dean, School of Applied Science and Engineering Technology, Lafayette; BS, MS Murray State University; PhD, Indiana State University
COOPER, REED J., Assistant Professor in Automotive Technology, Lafayette; BS, Indiana Wesleyan University
CREE, CHAD V., Assistant Professor in Computer Information Technology, Lafayette; BS, MS, MA, Ball State University
CUFFMAN, C. MICHAEL, Associate Professor in Communication, Program Chair, Lafayette; BA, Cedarville College, MA, Bowling Green State University
DEADMAN, ROBERT, Assistant Professor in Business, Dean, Lafayette; AAS, BS, Purdue University; MSM-IT, Colorado Technical University
DELAPLANE, BRUCE L., Assistant Professor in Elementary/Secondary Education, Program Chair, Lafayette; BS, Ball State University; MS, Purdue University
DOLK, KAREN L., Professor in Nursing, Department Chair, Lafayette; BSN, University of Pittsburgh; MSN, Case Western Reserve University
DYE, DEBORAH K., Instructor in Nursing, Lafayette; AS, Ivy Tech State College; BSN, Indiana University

Wesleyan University; MSN, Ball State University

EATON, BRYCE, Assistant Instructor in Welding, Lafayette; AS, Ivy Tech Community College
ELLY, SUSAN, Assistant Professor in Advanced Manufacturing and Mechanical Engineering Technology, Program Chair, Lafayette; BS, Rutgers University
ERSKIN, ERIC L., Associate Professor in Automotive Technology, Program Chair, Lafayette; AAS, Montcalm Community College; BS, Ferris State University; MA, Northern Michigan University
FARRESTER, SHELLEY S., Instructor of Health Information Technology, Lafayette; BS, Purdue University; BS, Indiana University
FAUST, JUDITH J., Associate Professor in Nursing, Lafayette; BSN, MSN, Ball State University
FREEMAN, NOAH D., Assistant Professor in Agriculture, Program Chair, Lafayette; BS, MS, University of Illinois
GIOVANNI, massimiliano, Spanish Faculty Fellow, Lafayette; BA, MA Purdue University
GORDON, JAMES A., Instructor in Business Administration, Lafayette; BS, Purdue University; MBA, Finance University of Houston
GUERRER, SARAH E., Associate Professor in English, Lafayette; BS, Indiana State University; Med, Bowling Green State University
GUSTUS, LISA A., Assistant Instructor in Nursing, Lafayette; TC and AS, Ivy Tech Community College; BSN, Indiana Wesleyan University; MSN, Indiana Wesleyan University
GUTHRIE, AMANDA J., Instructor in Surgical Technology, Lafayette; AAS, Ivy Tech State College; BA, Purdue University
HAMMER, WENDY K., Assistant Professor in English, Lafayette; BA, University of Wisconsin; MA, Ball State University
HEARN, DAVID H., Assistant Professor in Academic Skills Advancement, Lafayette; BS, MS, University of Delaware; PhD, Purdue University
HERRON-JOHNSON, HEIDI L., Assistant Professor in Spanish, Program Chair, Lafayette; BA, Drew University; MA and PhD, Purdue University
INGRAM, MIKE A., Assistant Instructor in HVAC, Program Chair, Lafayette; AAS, Ivy Tech Community College
ISAACS, JACOB P., Associate Professor in Communication, Lafayette; BA, Wabash College; MS, Ball State University; MS, Indiana University
JAEG, JESSICA., Instructors in Nursing, Lafayette Nursing Diploma, St. Elizabeth School of Nursing, BSN, Saint Joseph College; MSN, Indiana Wesleyan University
JAMES, PEGGY S., Professor in Respiratory Care, Program Chair, Lafayette; AAS, Lansing Community College; BS, MBA, Indiana Wesleyan University
JONES, ELIZABETH A., Associate Professor in Nursing, Lafayette; AAS, BSN, MS, Purdue University; MSN, Indiana University
JONES, ELIZABETH L., Associate Professor in Respiratory Care; Lafayette. TC and AS Ivy Tech Community College; BGS, Indiana University-Kokomo
LINDBERG, AMANDA BANCHE, Assistant Professor in Early Childhood Education, Program Chair, Lafayette; BA, North Central College; MA, Eastern Illinois University
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LUCAS, DONALD A., Assistant Professor in Design Technology, Program Chair, Lafayette; BS, MS, Purdue University
MANUE, YUYU V, Assistant Professor in Mathematics, Lafayette; BS, MS, University of Bombay; MS, University of Pittsburgh; MS, Columbia University
MCCLANAHAN, DOROTHY S., Professor in Surgical Technology, Program Chair, Lafayette; AAS, Purdue University; BSN, Graceland College; MSN, Purdue University
MCDANEL, RODNEY A., Associate Professor in Sociology, Program Chair, Lafayette; BS, Northern State University; MA, University of Houston; PhD, University of North Texas

MERCER, WILLIAM C., Assistant Professor in Mathematics, Lafayette; BA, University of Colorado; MS, University of Cincinnati

MICON, JOYCE L., Assistant Professor in Human Services, Program Chair, Lafayette; BA, Doane College; MSW, Case Western Reserve University

MILLER, JOLENE K., Professor, Dean, School of Health Sciences, Lafayette; AS, University of Southern Indiana; BS, College of St. Francis, MEd, Purdue University

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MOFFITT, DEREK., Instructor of Mathematics, Lafayette, BA, Washington University in St. Louis; MA, University of Wisconsin, Madison

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PRATER, BARBARA G., Special Projects to the Office of the Chancellor, and Associate Professor in Chemistry, Lafayette; BA, University of Kansas; PhD, University of Texas at Austin

PRIEST, ROGER D., Assistant Professor in Communication, Lafayette; BA, MA, Purdue University

RADZIEKOWSKI, MCKENZIE, JANICE, Assistant Professor in Biotechnology, Program Chair, Lafayette; BS, Montana University, PhD, Purdue University

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RAYMAN, JEANA M., Mathematics Faculty Fellow, Lafayette; BS, Purdue University

RISK, KATHLEEN M., Instructor in Academic Skills Advancement, Program Chair, Lafayette; BA, MA, Purdue University

ROBERSON, GLEN D., Associate Professor, Dean, Schools of Technology, Lafayette; BS,MS, Purdue University

ROBINSON, KAREN D., Faculty Fellow in English, Lafayette, BA and MA, Texas A&M University, PhD, Purdue University

ROBINSON, L. DIANN, Professor in Academic Skills Advancement, Department Chair, Program Chair, Lafayette; BA, MS, Purdue University

SAKS, DEBORAH L., Assistant Professor, Business Administration, Program Chair, Lafayette, BS, MS, Ph.D, Purdue University

SCHAUER, DOUGLAS J., Assistant Professor in Chemical Technology, Program Chair, Lafayette; BS, Drexel University; PhD, University of Notre Dame

SCHUSTER STAIR, DIANNA R., Professor in Business Administration, Lafayette; BS, MS, Purdue University

SCHWARTZ, ANDREA., Instructor in Agriculture, Lafayette; BS Purdue University

SHROTH, KEVIN, Communication Faculty Fellow, Lafayette; BA, MA, and PhD, The University of Iowa

SLAVEN, ISAAC, Instructor in Sustainable Energy, Program Chair, Lafayette; BS, MS, Purdue University

SLAVEN, ISAAC, Assistant Professor in Sustainable Energy, Program Chair, Lafayette; BS, MS, PhD, Purdue University

SMITH, ADAM D., Assistant Professor in Physics, Lafayette, BS, Michigan State University, MS and PhD, University of Illinois, Urbana

SMOKE, WARREN W., Associate Professor in Accounting, Program Chair, Lafayette; BS, University of Indianapolis; MBA, Indiana Wesleyan University

SNYERS, SHARON M., Professor in Academic Skills Advancement, Program Chair, Lafayette; BS, Purdue University; MS, Indiana Wesleyan; PhD, Purdue University

SWITZER, KELLY, Faculty Fellow in Psychology, Lafayette, BA, Purdue University, MA, Xavier University

TRAN, GREG, Instructor in Business Administration; BS, BC, University of Ottawa; MBA, University of Saskatchewan

TICEN, MELISSA K., Instructor in Dental Assisting, Program Chair, Lafayette; TC, Ivy Tech Community College; BS, Indiana Wesleyan University

TREES, SUSAN A., Instructor in Academic Skills Advancement; Lafayette; BA, Butler University; MS, Indiana University

TURNER, TINA., Instructor in Nursing, Lafayette. BSN Purdue University, MSN Regis University

ULMER, MICHAEL, Assistant Professor in Industrial Technology; Program Chair, Lafayette; AS, Vincennes University; BS Purdue University

UMBECK, J.Ryan, Instructor in Economics, Lafayette; BS, MS, Purdue University

URAZAEV, ALBERT K., Assistant Professor in Life Sciences, Lafayette; M.D., PhD, Sci.D. Kazan Medical Institute, Russia

VOORHES, NANCY L., Instructor in Psychology, Lafayette; BS, Excelsior College, MC, Capella University, D.Min., Ashland Theological Seminary

WEALING, JOAN, Assistant Professor in Computer Information Systems, Lafayette; BS, Taylor University; MSMIT, Colorado Technical University

WENDALL, ROBERT K., Assistant Professor in Mathematics, Lafayette; BS, MS, Purdue University

WILLIAM, COLIN T., Associate Professor in Psychology, Program Chair, Lafayette; BA, Berry College; MA, PhD, Emory University

WOODY, ROBERT T., Associate Professor in Industrial Technology, Lafayette; AS, Vincennes University, BS, Indiana State University

WULF, REBECCA K., Instructor in Academic Skills Advancement, Lafayette; AS, Vincennes University; BS, MS, Purdue University

YETMAN, CHRISTINA, Assistant Instructor in Medical Assisting, Lafayette; AAS, Ivy Tech Community College

KOKOMO REGION

DAILY, STEPHEN J., Chancellor; BS, MS Indiana University-Kokomo

LEWIS, PAMELA J., Vice Chancellor of Academic Affairs; BS, Indiana University; MA, Ball State University; PhD, Indiana State University
GUTHRIE, PAM, Vice Chancellor of Student Affairs; BA, University of Massachusetts; MS, Purdue University

MURPHY, THEREA, Executive Director of Instructional Sites; BS, Ball State University; MS, Indiana State University

WILSON, JANE, Assistant Vice Chancellor of Academic Affairs; BS, MA, Ball State University

THURMOND, BRADLEY H., Executive Director of Instructional Sites; BA, MS, Purdue University

BOSTIC, KEVIN, Vice Chancellor/Dean, Logansport; BS, MA, Ball State University

FACULTY

ANDERSON, DONALD, Assistant Professor in Physics, Kokomo; BS, Wisconsin State College; BS, PhD, Purdue University

BENNETT, CHARIE, Instructor in Biology, Anatomy and Physiology, Logansport; BS, Hampton University; MS, Alabama State University

BETZNER, DAVID, Instructor in Public Safety Technology, Program Chair, Kokomo; BS, MA, Columbia Pacific University

BRAUNSCHWEG, MELISSA, Instructor in English, Kokomo; BA, Rockford College; MA, Southern Illinois University at Edwardsville

BUNKER, KATHY, Instructor in Medical Assisting, Logansport; AAS, Harper College

BYRD, JULIE, Assistant Professor in Computer Information Systems, Program Chair, Logansport; BS, Indiana Wesleyan University; MS, Ball State University

CALDWELL, KIM, Assistant Professor in Mathematics, Kokomo; BS, Purdue University; MS, Indiana University

CARDEN, DORIS M., Instructor in Nursing, Kokomo; ASN, BSN, Indiana University

CHALFIN, JOHN, Assistant Professor in Paramedic Science, Program Chair, Kokomo; BS, Indiana University

DAHLHAUSER, JOYCE, Instructor in Mathematics, Wabash; BS, DeVry University

EHLER, KATHY M., Instructor in Nursing, Wabash; ASN, BSN, Indiana University

EKENBERG, GAYLE, Instructor in Spanish, Kokomo; BS, MS Indiana University

ELDRIDGE, GWENN A., Instructor in English, Program Chair, Kokomo; BA, Indiana University; MA, Butler University

ERNY, MICHAEL, Assistant Professor in Automotive Technology, Program Chair, Kokomo; BS Indiana State University

FERRIES, KENNETH, Assistant Professor in Political Science, Program Chair, Kokomo; BA, JD, Indiana University

FITZGERALD, JAMES, Assistant Professor in Business Administration, Program Chair, Kokomo; BA, McKendree College; MA, Xavier University

GARDNER, RANDALL, Associate Professor in HVAC, Program Chair, Kokomo; AAS, Ivy Tech State College; AS, BS, Indiana State University; MSM, Ball State University

GEIK, RONALD, Associate Professor in Industrial Technology, Logansport; BS, Black Hills State University

GERING, THOMAS, Associate Professor in English, Program Chair, Kokomo; AA San Diego Mesa College; BA, San Diego State University; MA, Purdue University

GORDON, DENNIS, Assistant Professor in Computer Information Technology, Program Chair, Kokomo; AS, Phillips Junior College; BS, Southern Illinois University; MS, Touro University International

GROVES, RHONDA K., Professor in Office Administration, Dean of the School of Technology and the School of Applied Science and Engineering, kokomo; BA, MA, Ball State University

GROVES, STEVE, Associate Professor in Accounting and Business Administration, Program Chair, Kokomo; BS, Indiana State University; MBA, Indiana Wesleyan University

HALL, JAY, Assistant Professor in Mathematics, Program Chair, Kokomo; BS, Rose Hulman Institute; MS, Indiana University

HAPNER, LAURA, Instructor in Human Services, Program Chair, Kokomo; BA, MA, Ball State University

HARDIMON-EDDINGTON, JIA S., Instructor in Surgical Technology, Program Chair, Kokomo; AS, Ivy Tech Community College

HARDIN, FRANCES B., Assistant Professor in Biology, Anatomy and Physiology, Program Chair, Kokomo; BA, Marian College; MA, Ball State University

HARRIS, PHYLLISS, Associate Professor in Office Administration, Program Chair, Kokomo; BS, Ball State University

HARTZOG, RICHARD, Instructor in Practical Nursing, Kokomo; BSN, Indiana Wesleyan University

HECHER, ETHAN, Instructor in English, Kokomo; BA, Eastern Illinois University; MA, Mississippi State University

HENRY, MARIAN, Instructor in Nursing, Assistant Department Chair, Logansport; BSN, Indiana University

HILDENBRAND, JANE, Associate Professor in Early Childhood Education, Program Chair, Kokomo; AS, Vincennes University; BS, MS, Indiana State University

HOLSAPPLE, MICHAEL, Associate Professor in Criminal Justice, Program Chair, Logansport; BA, Indiana University; MS, Indiana State University

HORNER, JANE, Associate Professor in Early Childhood Education, Logansport; BS, Purdue University; MS, Indiana University

JOHNSON, CHRISTOPHER L., Assistant Professor in Criminal Justice, Kokomo; BS, Cedarville College; JD, University of San Diego

JORDAN, GRETHE, Assistant Professor in Mathematics, Program Chair, Kokomo; BS, MS, Purdue University

KING, KIM, Associate Professor in Communication, Dean of the School of Liberal Arts and Sciences and the School of Fine Arts and Design, kokomo; BS, University of Indianapolis; MA, Ball State University

LAUDERBAUGH, LINDA, Associate Professor in Nursing, Kokomo; BS, Indiana University; MSN, University of Southern Indiana

LEDGETTE, TAMERA L., Instructor in Nursing, Kokomo; BSN, Indiana University; MSN, Indiana Wesleyan University

LONG, LAURA, Instructor in Nursing, Logansport; BSN, Valparaiso University; MSN, University of Phoenix

MAPLE, CHERYL, Instructor in Nursing, Kokomo; BSN, Indiana University

MARCU, HEATHER, Instructor in Nursing, Kokomo; BSN, Indiana University

MCCLAIN, NATHAN, Assistant Professor in Advanced Manufacturing, Program Chair, Kokomo; BS, Purdue University

MCCAULEY, AMY, Assistant Professor in English, Kokomo; BA, Butler University; MA, Ball State University

MCFARLAND, BARBARA, Assistant Professor in Office Administration, Logansport; BS, Ball State University; MS, Indiana Wesleyan University

MCNALLY, DALENE S., Instructor in Nursing, Logansport; ASN, BSN, Indiana University

MILLER, JERRY, Assistant Professor in Education, Program Chair, Kokomo; BS, MS, Ball State University

MOORMAN, THOMAS, Assistant Professor in Business Administration, Wabash; BA, Wabash College; MBA, University of Phoenix

MORGAN, CONNIE, Professor in Medical Assisting, Dean of the School of Public and Social Services and the School of Education, kokomo; BS, MEd, Indiana Wesleyan University

MUGHMAW, THANH, Instructor in Industrial Technology, Wabash; BS, Indiana Wesleyan University

PERKINS, JERRY, Assistant Professor in Computer Information Technology, Wabash; BS, Indiana University; MS, Webster University; MBA Troy State University

PETERS, LAURIE F., Professor in Nursing, Dean of the School of Health Sciences, Kokomo; BSN, Indiana University-Kokomo; MSN, Ball State University

PETERTSON, DANIEL, Assistant Professor in Nursing, Kokomo; AS, BS, MSN, Indiana University
BISHOP, TONYA, Associate Professor in Computer Information Systems, Kokomo; BS, MS, Ball State University
PRICE, LISA, Assistant Professor in Nursing, Kokomo; BSN, Indiana University; MSN, Indiana University — Purdue University
Pritchett, John E., Assistant Professor in Construction Technology, Program Chair, Kokomo; AS, Linn Technical College; BS, Indiana State University
Riddick, Kristy, Instructor in Dental Assisting, Program Chair, Kokomo; BA, Graceland University
Rockey, Joshua, Assistant Professor in Communication, Program Chair, Kokomo; BA, MA, Ball State University
Siemens, Elizabeth, Assistant Professor in English, Logansport; BS, Indiana State University; MS, Purdue University
Slusher, Patricia, Assistant Professor in Medical Assisting, Program Chair, Kokomo; BS, Indiana University
Smith, Wendy, Instructor in Mathematics, Logansport; BA, Judson University; MS, Loyola University Chicago
Spence, Gregory D., Instructor in Advanced Manufacturing, Logansport; AAS, Ivy Tech Community College; BA, Indiana University
Srotyr, Edith, Instructor in Medical Assisting, Kokomo; AAS, Ivy Tech Community College
Steele, Kenneth, Assistant Professor in Business Administration, Logansport; Kokomo; BS, MBA, Fontbonne University
Thibos, Ronald, Assistant Professor in Industrial and Manufacturing Technology, Program Chair, Kokomo; BS, MS, Indiana State University
Vain, Sally, Assistant Professor in Psychology, Program Chair, Kokomo; BS, MA, Ball State University
Vanderburg, Jennifer M., Instructor in Agriculture, Program Chair, Kokomo; BS, University of Illinois; MS, Purdue University
Ward, Dan, Assistant Professor in Design Technology, Program Chair, Kokomo; BS, Purdue University
Ward, Luke, Assistant Professor in Visual Communications, Kokomo; BS, Purdue University
Wiley, Kyle, Assistant Professor in Visual Communications, Program Chair, Kokomo; BS, Purdue University
Wilson, Marnie, Assistant Professor in Paralegal Studies, Program Chair, Kokomo; BA, University of Rochester; JD, Indiana University
Williams, Kelly, Associate Professor in Nursing, Department Chair, Kokomo; MSN, Indiana Wesleyan University

EAST CENTRAL REGION

Chesterfield, Gail, Chancellor; BS, Indiana University, MA, Ball State University, ABD, Indiana University
Lightle, John, Vice Chancellor/Dean, Marion; BS, MA, EdD, Ball State University
Sloan, Ronald, Vice Chancellor of Academic Affairs; DMA, University of Arizona
Lewis, Mary, Vice Chancellor of Student Affairs, Muncie; BS, MA, Ball State University University
Wiley, James, Vice Chancellor/Dean; BS, Marian College; MEA, EdD, Ball State University

FACULTY

Adams, Sharon, Instructor in Nursing, Muncie; ASN, Floyd College; BSN Indiana Wesleyan University; MSN Indiana Wesleyan University
Anthony, Neil, Associate Professor in Liberal Arts and Sciences, Dean of Liberal Arts and Sciences; BS, MA, Ball State University
Averitt, Darlisha, Assistant Professor in Respiratory Care, Program Chair, New Castle, MBA Anderson University
Bishop, Dan, Associate Professor in Office Administration, Program Chair, Marion; BS, Indiana State University; MA, Indiana Wesleyan University
Brice, Jon, Assistant Professor in Liberal Arts and Sciences, Assistant Chair for Mathematics and Physical Sciences, Marion
Brookbank, Kathleen, Instructor in Nursing, New Castle; BSN, MSN, Ball State University
Cain, Robert, Instructor in Surgical Technology, Program Chair, Muncie; AAS, Ivy Tech Community College; BA, Indiana University
Conwell, Tammy, Assistant Professor in Early Childhood Education, Muncie; BA, MA, Ball State University
Culp, Sid, Assistant Professor in Design Technology, Anderson/Marion; BS, Ball State University
Dana, Kristen, Assistant Professor in Academic Skills, English, Muncie; BS, MA, Ball State University
Dietzen, Karrie, Assistant Professor in Nursing, Muncie; AD, Anderson University; BS, Indiana Wesleyan University; MSN, University of Phoenix
Dillman, Debra, Assistant Professor in Radiologic Technology, Program Chair, Marion; BS, Indiana Wesleyan University; MS, Midwestern State University
Everett, Arnold, Assistant Professor in Academic Skills, Associate Professor in Academic Skills, Marion; BS, MA, Ball State University
Fry, John, Assistant Professor in Academic Skills, Dean of the Department of Academic Skills, Muncie; BS, MA, Ball State University
Gilbert, Larry, Associate Professor in Liberal Arts and Sciences, Assistant Chair for English, Communication and Languages, Anderson; AB, Anderson University; MA, Ball State University
Goodman, Stefanie, Assistant Professor in Medical Assisting, Program Chair, Marion; BS, Ball State University; MSN, CMA (AAMA)
Gossett, Kris, Assistant Professor in Business Administration, Muncie; BS, Otterbein College; MBA, Morehead State University
Gould, Suzanne, Associate Professor in Liberal Arts and Sciences; Chair for Biological and Chemical Sciences, Anderson; BFA, University of Illinois-Urbana; MAMS, University of Chicago-Chicago
Gourley, Debbie, Assistant Professor in Hospitality Administration, Program Chair, Muncie; BS, MA, Ball State University
Gray, Robert, Instructor in Academic Skills Mathematics, Marion; BS, MA, Ball State University
Greenan, Mary, Associate Professor in Academic Skills, Anderson; BS, University of Maine; MS, Butler University
Griffin, Obrin, Assistant Professor in Electronics, Program Chair, Anderson; BS, University of Sierra Leone; MSEE, University of Evansville
Grigg, Elke, Assistant Professor in the School of Liberal Arts and Sciences; Co-Chair for Social Sciences/Humanities, Muncie; BS, MA, Ball State University
Gross, Lesa, Nursing Instructor, Muncie, BSN, Indiana Wesleyan University.
Hanson, Greg, Assistant Professor in Computer Information Systems/Technology, Anderson; AAS, Ivy Tech State College; BS, Free Will Baptist College; MS, Ball State University
Hardman, Teresa, Assistant Professor in Nursing, Muncie; BSN, MSN, Ball State University
Hawes, Maureen, Instructor in Nursing, Anderson; BSN, Ball State University
Hayes, David, Assistant Professor in Computer Information Systems/Technology, Program Chair, Muncie; BS, MS, Ball State University
Heller, Monica, Assistant Professor in Liberal Arts and Sciences, Assistant Chair for Social Sciences/Humanities, Marion.
Hicks, Michelle, Assistant Professor in Nursing, Muncie; BSN, MSN, NB, Ball State University
Hiday, Mary, Associate Professor in Nursing, Program Chair, Muncie; AD, Anderson College; BSN, Anderson University; MA, Ball State University
HOBBS, LORI, Assistant Professor in Physical Therapist Assistant, Academic Coordinator of Clinical Education, Muncie; AS, Oklahoma City Community College; BS, Indiana University; MA, Ball State University
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HUDSON, JOYCE, Assistant Professor, Dental Hygiene Program Chair, RDH, Medical University of South Carolina, MS, University of Missouri-Kansas City
HUFF, NEIL, Instructor in Public Safety, Program Chair, Muncie; AS, Indiana University; BSA, Purdue University; MPA, Indiana University
HUNT, JILL, Instructor in Nursing, New Castle; BSN, Indiana University Northwest
HYATT, ANDREA, Assistant Professor in Academic Skills, Marion; BA, MA, Ball State University
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BREEDING, JUDY, Instructor in Nursing, Columbus; BSN, Indiana University, MSN, University of Southern Indiana
BRIGGS, JOYCE, Instructor in Nursing, Columbus; BSN, Elmhurst College; MS, Xavier University
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SOUTHWEST REGION

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SOUTHERN INDIANA REGION

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JEWELL, SUSAN C., Associate Professor in Practical Nursing, Program Chair, Sellersburg; LPN, New Albany School of Nursing; BSN Spalding University; MS, Indiana University
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LEWIS, KRISTY, Instructor in Medical Assisting, Program Chair, Sellersburg; TC, Ivy Tech State College; CPC and CPHIA; BS, Ottawa University
LONG, ROY, Industrial Technology, Program Chair, Sellersburg; BS, Indiana University
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PENNINGTON, CHRISTINA, Instructor in Nursing, Sellersburg; BSN, Indiana University SE
PHULPIAGAR, STANLEY, Instructor in General Education, Sellersburg; BS, Blaycan's College; MS, Central Michigan University
RANDIELLA, GOOL, Professor in General Education, Sellersburg; BA, MA, University of Bombay; MLS, Indiana University; MS, Indiana University Southeast
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RENN, BARBARA, Instructor in LAS, Sellersburg; BA, Ursuline College; MS, Purdue University
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SPECK, MELISSA, Assistant Professor in Business, Sellersburg; BS, MBA, Indiana University
STOCKDELL, ELIZABETH, Assistant Professor in Associate of Science in Nursing, Sellersburg; BSN, MA, Spalding University, MSN, Spalding University
SUER, JUSTIN, Instructor in Business, Dean of Business, Sellersburg; BS, Indiana University Bloomington; MBA, Indiana University Southeast
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ARNOLD, MICHAEL, Associate Professor in Academic Skills Advancement, Sellersburg; BA, Central Bible College; MDiv, Southern Baptist Theological Seminary
WHITEHILL, KRISTI, Instructor in Communications, Sellersburg; BS, MA, Wayne State University
VOGEN-RIFLE, MARY, Instructor in Practical Nursing, Sellersburg; BSN, UAB
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BLOOMINGTON REGION

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WYATT, KARLEE, Instructor in Radiation Therapy, Clinical Director, Bloomington, BA Indiana University/Purdue University at Indianapolis

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IVY TECH
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Ivy Tech Community College is accredited by The Higher Learning Commission and is a member of The North Central Association. Other accrediting agencies and affiliates are listed below by regions. The College is a member of the American Association of Collegiate Registrars and Admissions Officers, the American Association of Community Colleges, the Association of Community College Trustees, CAUSE, the National Association of College and University Business Officers, the National Association of Colleges and Employers, the National Association of Financial Aid Administrators, the National Council for Research and Planning, the National Council on Student Development, the Society for College and University Planning, the National College Testing Association, and the Community Colleges for International Development.

### NORTHWEST (GARY, EAST CHICAGO, MICHIGAN CITY, VALPARAISO)

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<td>Commission on Accreditation for Respiratory Care</td>
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### NORTH CENTRAL (SOUTH BEND, ELKHART, WARSAW)

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<td>Phlebotomy</td>
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<td>Design Technology</td>
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<td>Industrial Technology, Welding Concentration</td>
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### NORTHEAST (FORT WAYNE)

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<td>Commission on Accreditation for Respiratory Care</td>
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<tr>
<td>American Association of Medical Assistants' Endowment</td>
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</table>
### Paramedic
- American Welding Society
- Association of Collegiate Business Schools and Programs
  - Accounting
  - Business Administration
  - Computer Information Systems
  - Computer Information Technology
  - Office Administration
- Dietary Managers Association
- Indiana State Board of Nursing
- National League for Nursing Accreditation Commission
- National Institute for Automotive Service Excellence (KOKOMO)
- National Automotive Technicians' Education Foundation
- Association of Technology, Management and Applied Engineering
  - Automotive Technology
  - Design Technology
  - Industrial Technology
- Federal Aviation Administration, Airmen Certification Branch
- Commission for Hotel, Restaurant and Institutional Education
- American Culinary Federation Foundation
- Council for Standards in Human Services Education
- Commission on Massage Therapy Accreditation
- Indiana State Board of Health
- National Organization for Human Services Education

### Automotive
- Occupational Safety and Health Administration
  - Occupational Safety and Health
- National Institute for Occupational Safety and Health

### Medical
- Commission on Accreditation of Educational Programs for the Emergency Medical Services Professional
- American Dental Association
  - Commission on Dental Accreditation
  - American Dental Association, Commission on Dental Accreditation

### Surgical
- Accreditation Review Council on Education in Surgical Technology & Surgical Assisting
- American Association of Medical Assistants' Endowment
- Committee on Accreditation of Educational Programs for the Emergency Medical Services Professional

### Human
- Commission on Accreditation of Allied Health Education Programs
- American Dental Association, Committee on Dental Accreditation

### Program Area
- LAFAYETTE (LAFAYETTE)
  - Indiana State Board of Nursing
  - Indiana State Board of Health
  - National League for Nursing Accrediting Commission
  - American Dental Association, Commission on Dental Accreditation

- KOKOMO (KOKOMO, LOGANSPORT)
  - American Association for Paralegal Education
  - American Dental Association, Committee on Dental Accreditation
  - Association for Collegiate Business Schools and Programs

## LAFAYETTE (LAFAYETTE)
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## KOKOMO (KOKOMO, LOGANSPORT)
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<td>Accreditation Review Council on Education in Surgical Technology &amp; Surgical Assisting</td>
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<td>Committee on Accreditation of Educational Programs for the Emergency Medical Services Professional</td>
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### EAST CENTRAL (ANDERSON, MARION, MUNCIE)

<table>
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<tbody>
<tr>
<td>Association for Collegiate Business Schools and Programs</td>
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<td>Joint Review Committee on Education in Radiologic Technology</td>
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### WABASH VALLEY (TERRE HAUTE)

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<tr>
<td>Association for Collegiate Business Schools and Programs</td>
<td>Accounting, Business Administration, Computer Information Systems, Computer Information Technology, Office Administration</td>
</tr>
<tr>
<td>Indiana State Board of Health</td>
<td>Nurse Aide</td>
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### CENTRAL INDIANA (INDIANAPOLIS)

<table>
<thead>
<tr>
<th>AGENCY</th>
<th>PROGRAM AREA</th>
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<tbody>
<tr>
<td>American Board of Funeral Services Education</td>
<td>Mortuary Science</td>
</tr>
<tr>
<td>The American Culinary Federation Foundation</td>
<td>Hospitality Administration, Culinary Arts</td>
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<tr>
<td>International Association of Administrative Professionals</td>
<td>Office Administration</td>
</tr>
<tr>
<td>Commission on Accreditation of Allied Health Education Programs:</td>
<td></td>
</tr>
<tr>
<td>American Association of Medical Assistants’ Endowment</td>
<td>Medical Assisting</td>
</tr>
<tr>
<td>Accreditation Review Council on Education in Surgical Technology and Surgical Assisting</td>
<td>Surgical Technology</td>
</tr>
<tr>
<td>Commission on Accreditation for Respiratory Care</td>
<td>Respiratory Care</td>
</tr>
<tr>
<td>Joint Review Committee on Education in Radiologic Technology</td>
<td>Imaging Sciences</td>
</tr>
<tr>
<td>Association for Collegiate Business Schools and Programs</td>
<td>Accounting, Business Administration, Computer Information Systems</td>
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<td>Agency</td>
<td>Program Area</td>
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</tr>
<tr>
<td>Council for Standards in Human Services Education</td>
<td>Human Services</td>
</tr>
<tr>
<td>National Institute for Automotive Service Excellence/ National Automotive Technicians Education Foundation</td>
<td>Automotive Technology</td>
</tr>
<tr>
<td>National League for Nursing Accrediting Commission</td>
<td>Associate of Science in Nursing, Practical Nursing</td>
</tr>
<tr>
<td>Indiana State Board of Nursing</td>
<td>Associate of Science in Nursing, Practical Nursing</td>
</tr>
<tr>
<td>Indiana State Board of Health</td>
<td>Certified Nursing Assistant, Qualified Medication Aide</td>
</tr>
<tr>
<td>International Council on Hotel/Restaurant and Institutional Education</td>
<td>Hospitality Administration</td>
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<tr>
<td>Commission on Accreditation of Hospitality Management</td>
<td>Hospitality Administration</td>
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<tr>
<td>Commission on Accreditation for Health Informatics and Information Management Education</td>
<td>Health Information Technology</td>
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<tr>
<td>American Association for Paralegal Education</td>
<td>Paralegal Studies</td>
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### COLUMBUS (COLUMBUS)

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<th>Agency</th>
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<tbody>
<tr>
<td>Indiana State Board of Nursing</td>
<td>Practical Nursing, Associate of Science in Nursing</td>
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<tr>
<td>Association for Collegiate Business Schools and Programs</td>
<td>Accounting, Business Administration, Computer Information Systems, Computer Information Technology, Office Administration</td>
</tr>
<tr>
<td>Commission on Accreditation of Allied Health Education Programs:</td>
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</tr>
<tr>
<td>American Association of Medical Assistants' Endowment</td>
<td>Medical Assisting</td>
</tr>
<tr>
<td>Committee on Accreditation of Education Programs for the Emergency Medical Services Professional</td>
<td>Paramedic Science</td>
</tr>
<tr>
<td>Association of Surgical Technologists</td>
<td>Surgical Technology</td>
</tr>
<tr>
<td>Indiana State Board of Health</td>
<td>Certified Nursing Assistant</td>
</tr>
<tr>
<td>Association for Continuing Education and Training</td>
<td>Corporate and Continuing Education Services</td>
</tr>
<tr>
<td>National League of Nursing Accrediting Commission</td>
<td>Associate of Science in Nursing, Practical Nursing</td>
</tr>
<tr>
<td>American Dental Association, Commission on Dental Accreditation</td>
<td>Dental Assisting</td>
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<tr>
<td>Association of Technology, Management and Applied Engineering</td>
<td>Design Technology, Industrial Technology</td>
</tr>
<tr>
<td>National Association of Schools of Art and Design</td>
<td>Interior Design, Visual Communications</td>
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### RICHMOND (RICHMOND)

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<tr>
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<tr>
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<td>American Association of Medical Assistants' Endowment</td>
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<td>Indiana Department of Homeland Security</td>
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<tr>
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### SOUTHEAST (LAWRENCEBURG, MADISON)

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<tr>
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<td>Accounting</td>
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<td><strong>SOUTHWEST (EVANSVILLE)</strong></td>
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<tr>
<td>Committee on Accreditation of Education Programs for the EMS Professional</td>
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<td>Electronics Technology</td>
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<td>Design Technology</td>
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<td>National Association for the Education of Young Children</td>
<td>Early Childhood Education</td>
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<td>Nurse Aide</td>
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<td>Emergency Medical Technician, Basic Paramedic</td>
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<td>Council for Standards in Human Services Education</td>
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</table>
Contact Information for Accrediting Organizations

Accreditation Review Council on Education in Surgical Technology and Surgical Assisting
6 W. Dry Creek Circle, Suite 110
Littleton, CO 80120  (303) 694-9262  F:(303) 741-3655
www.arcsta.org

American Association of Medical Assistants’ Endowment
20 North Wacker Drive, Suite 1575
Chicago, IL 60606  (312) 899-1500
www.aama-ntl.org

Association for Healthcare Documentation Integrity (AHDI)
4230 Kierman Avenue, Suite 130
Modesto, CA 95356  (800) 982-2182  F:(209) 527-9633
www.ahdionline.org

American Association for Paralegal Education
19 Mantua Road
Mt. Royal, NJ 08061  (856) 423-2829  F:(856) 423-3420
www.aapfe.org

American Board of Funeral Service Education
3414 Ashland Avenue, Suite G
St. Joseph, MO 64506  (816) 233-3747  F:(816) 233-3793
www.absfe.org

American Culinary Federation Foundation
180 Center Place Way
Saint Augustine, FL 32095  (800) 624-9458  F:(904) 825-4758
www.acfchefs.org

American Dental Association, Commission on Dental Accreditation
211 East Chicago Avenue, Suite 1900
Chicago IL 60611-2500  (312) 440-4653
www.ada.org

American Welding Society
550 N.W. LeJeune Road
Miami, FL 33126  (800) 443-9353
www.aws.org

Association of Collegiate Business Schools and Programs
11520 West 119th St.
Overland Park, KS 66213  (913) 339-9356  F:(913) 339-6226
www.acbsp.org

Association for Gerontology in Higher Education
1200 L St., NW, Suite 901
Washington, DC 20005  (202) 289-9806  F:(202) 289-9824
www.aghe.org

Association of Surgical Technologists
6 W. Dry Creek Circle #200
Littleton, CO 80120  (303) 694-9130  F:(303) 694-9169
www.ast.org

Commission on Accreditation in Physical Therapy Education
1111 N. Fairfax Street
Alexandria, VA 22314-1488  (703) 684-2782
F:(703) 684-7343
www.apta.org

Commission on Accreditation of Allied Health Education Programs
1361 Park Street
Clearwater, FL 33756  (727) 210-2350  F:(727) 210-2354
www.caahep.org

Commission on Accreditation of Hospitality Management
P.O. Box 400
Oxford, MD 21654  (410) 226-5527  F:(410) 226-0177
www.acpha-cahm.org

Commission on Accreditation of Schools of Respiratory Care
1248 Harwood Road
Bedford, TX 76021-4244  (817) 283-2835  F:(817) 354-8519
www.coarc.com

Council for Standards in Human Services Education
Attn: John Heapes; PMB 297
1935 S. Plum Grove Road
Palatine, IL 60067
www.cshe.org

Dietary Managers Association
406 Surrey Woods Drive
St. Charles, IL 60174  (800) 323-1908  F:(630) 587-6308
www.dmaonline.org

Federal Aviation Administration, Airman Certification Branch
P.O.Box 25082
Oklahoma City, OK 73125-0082  (866) 878-2498
F:(405) 954-4105
www.faa.gov

Higher Learning Commission of the North Central Association
30 North La Salle Street, Suite 2400
Chicago, IL 60602-2504  (800) 621-7440  F:(312) 263-7462
www.ncahlc.org

HVAC Excellence
P.O.Box 491
Mount Prospect, IL 60056-0521  (800) 394-5268
F:(800) 546-3726
www hvacexcellence.org

Indiana State Department of Health
Two North Meridian Street
Indianapolis, IN 46204  (317) 233-1325
www.in.gov/isdh

Indianapolis State Board of Nursing, Health Professions Bureau
402 West Washington Street, Room W 072
Indianapolis, IN 46204  (317) 234-2043  F:(317) 233-4236
www.in.gov/pla/nursing.htm
Indiana Department of Homeland Security
302 West Washington Street
Indianapolis, IN 46204  (317) 232-3980
www.in.gov/dhs

International Association for Continuing Education and Training
1760 Old Meadow Road, Suite 500
McLean, VA 22102  (703) 506-3275  F:(703) 506-3266
www.iacet.org

International Association of Administrative Professionals
10502 NW Ambassador Drive; P.O.Box 20404
Kansas City, MO 64195-0404  (816) 891-9118
F:(816) 891-6600
www.iaap-hq.org

International Council on Hotel, Restaurant & Institutional Education
2810 N. Parham Road, Suite 230
Richmond, VA 23294  (804) 346-4800  F:(804) 346-5009
www.chrie.org

Joint Review Committee on Education in Radiologic Technology
20 N. Wacker Drive, Suite 2850
Chicago, IL 60606-3182  (312) 704-5300
F:(312) 704-5304
www.jrcert.org

National Accrediting Agency for Clinical Laboratory Sciences
5600 N. River Road, Suite 720
Rosemont, IL 60018-5119  (773) 714-8880
F:(773) 714-8886
www.naacls.org

National Association for Continuing Education of Young Children
1313 L St. NW, Suite 500
Washington, D.C. 20005  (800) 424-2460
F:(202) 328-1846
www.naeyc.org

National Association of Alcohol and Drug Abuse Counselors
1001 N. Fairfax St., Suite 201
Alexandria, VA 22314  (800) 548-0497  F:(800) 377-1136
www.naadac.org

The Association of Technology, Management, and Applied Engineering
3300 Washtenaw Avenue, Suite 220
Ann Arbor, MI 48104  (734) 677-0720  F:(734) 677-0046
www.atmae.org

National Association of Schools of Art and Design
11250 Roger Bacon Dr., Suite 21
Reston, VA 20190-5248  (703) 437-0700  F:(703) 437-6312
www.nasad-accredit.org

National League for Nursing Accrediting Commission
3343 Peachtree Road N.E., Suite 500
Atlanta, GA 30326  (404) 975-5000
F:(404) 975-5020
www.nlnac.org

National Institute for Automotive Service Excellence/National Automotive Technicians' Education Foundation
101 Blue Seal Drive SE, Suite 101
Leesburg, VA 20175  (703) 669-6600
www.asecert.org

National Organization for Human Services
5341 Old Highway 5, Suite 206, #214
Woodstock, GA 30188  (770) 924-8899  F:(678) 494-5076
www.nationalhumansservices.org
Entering the College

ADMISSIONS FOR NON-DEGREE ENROLLMENT
Ivy Tech offers courses in many areas. Admission as a non-degree student can be achieved simply by submitting a completed application for admission to the Office of Admissions or online at www.ivytech.edu. High school students (age sixteen or greater) may take Ivy Tech courses with the written approval of the appropriate high school official. Non-degree students enrolling in general education courses or in courses with English or mathematics pre-requisites must take the ASSET or COMPASS course placement assessment. Non-degree students taking other courses may also be required to take the assessment. Non-degree students are not eligible to receive federal or state financial aid.

ADMISSIONS FOR DEGREE ENROLLMENT
Ivy Tech is an open admissions college, accessible to all Indiana citizens past high school age. Some degree-granting programs have limited availability and have additional requirements prior to acceptance to those programs.

The College admits to certificate, technical certificate and degree programs the following:

- high school graduates, or
- recipients of the General Educational Development (GED) credential, or
- individuals 18 years of age or older who are able to benefit from Ivy Tech Community College's instructional programs.

Prospective students will provide on the application for admission the name of the high school from which they graduated and the date of graduation. Prospective students who are recipients of a GED will indicate on the application for admission that they have completed the GED and the date it was earned. High school transcripts are not required for admission to the college, but may be required for selective admission programs such as Nursing, international students seeking admission, and for certain financial aid programs.

ADMISSIONS FOR GUEST STUDENTS
Prospective students currently admitted as students in good standing at another regionally accredited institution of higher education who desire to be admitted to Ivy Tech Community College for the limited purpose of taking courses for transfer to their home institution can be admitted using the guest student admissions process. Guest students are required to submit a Guest Student Application.

Guest students must be in good academic standing at their home institution as determined by the home institution's policies. Academic standing will be verified on the Guest Student Application by either:

a) signature of the Dean or other designated official of their home institution; or

b) signature of an Ivy Tech Community College official after review of documentation verifying matriculation during one of the previous two terms at the student's home institution.

Guest students shall be admitted for one semester at a time and must complete the Guest Student Application for each term of enrollment. They are not eligible for any financial aid programs administered by Ivy Tech Community College while admitted as a guest student. The guest student may enroll in any course(s) for which they deem themselves eligible. Students should make themselves aware of the prerequisites for each course.

COURSE PLACEMENT ASSESSMENT
All degree-seeking students must participate in the ASSET/COMPASS assessment. The purpose of these assessments is to measure the student's achievement in mathematics, reading, and writing, and to assist the student in the selection of appropriate courses. If the assessments reveal skill deficiencies, the student will be advised to complete appropriate developmental courses. Students may be eligible for financial aid during this period. When an assessment indicates that a student would be better served in an alternative educational setting, that individual may be referred to an appropriate community resource offering the needed assistance. The applicant may re-enter the admissions process at a later date, following completion of skills upgrading. Granting substitution of the ASSET/COMPASS assessment is the responsibility of the academic officer or designee. Substitutions will be granted to students who meet one or more of the following conditions:

- Possess an associate degree or higher from a regionally accredited college with math skills at the MATH 035 or MATH 043 level or higher and writing skills at the ENGL 025 level or higher. The number of years since an associate or higher degree was earned is not relevant.
- Have completed comparable academic skills advancement or general education courses in writing or math with a grade of "C" or better from a regionally accredited college within the last ten years. For purpose of substituting the reading portion, the prospective student must have completed a basic skills reading course or college-level general education course that has reading as a prerequisite.
- Have comparable assessment scores (earned within the last two years) from a regionally accredited institution.
- Have SAT/ACT/PSAT scores earned within the last four years that are comparable to COMPASS benchmarks for appropriate course placement into college-level courses.

The College reserves the right to guide the enrollment of students in particular programs or courses on the basis of past academic records, academic counseling and assessment.

READMISSION FOLLOWING ENROLLMENT ABSENCE
Should a course of study at the College be interrupted more than two years, students must request readmission by contacting the Admissions Office. Information on eligibility for financial aid will be available to returning students.

LIMITED ENROLLMENT PROGRAMS
Occasionally, the number of students admitted and enrolled in programs and/or courses may be limited by College resources or facilities and/or the number of available clinical sites. These programs may have additional admission requirements. Students seeking admission to limited enrollment programs may be requested to take part in specific pre-enrollment assessments. Prerequisites may be required before enrolling in certain programs. The Office of Student Affairs should be contacted regarding programs which have limited access.
ADMISSION PROCEDURES AND SUPPORT DOCUMENTS—DEGREE OBJECTIVE

All prospective students pursuing an Associate of Arts, Associate of Fine Arts, Associate of Science, Associate of Applied Science, a Technical Certificate or a Certificate are required to:

1. submit an Application for Admission
2. verify the following:

A. For high school graduates:
   If they are high school graduates from public schools, home schools, private schools, or high school correspondence schools, prospective students should provide on the application for admission the name of the high school from which they graduated and the date of graduation. Prospective students should note that an Indiana certificate of completion is not the same as a high school diploma. If students have a certificate of completion, they are not considered high school graduates for purposes of admissions requirements.

B. For non high school graduates:
   (1) Prospective students who are recipients of a GED from the American Council on Education (ACE), or from a recognized state education body, will indicate on the application for admission that they have completed the GED and the date it was earned. High school equivalency exams provided by other organizations are not acceptable; or
   (2) they may demonstrate the Ability to Benefit from postsecondary education by obtaining a passing grade on a test recognized for this purpose by the U.S. Department of Education. Within one calendar year of their initial date of declaration as a degree-seeking student, a student must verify completion of a high school diploma or GED. To verify completion, students will complete a change of information form and in the area on the form for changing programs will indicate they are changing from non-high school graduate to high school graduate or GED completion. Students admitted under this provision who do not meet these requirements will be switched to courses-only status after a calendar year and are no longer eligible for federal, state, or institutional financial aid. A student cannot graduate from Ivy Tech (technical certificate or associate degree) without proof of high school graduation or passing GED scores. Students who do not meet B(1) or B(2) should be referred to the appropriate College or community services (Adult Basic Education).

A new provision allows students without a high school diploma or its equivalent to become eligible to receive Title IV funding upon satisfactory completion of six credit hours or the equivalent coursework that are applicable toward a degree or certificate offered by the institution. Students are ineligible to receive Title IV aid while earning the six credits.

As part of the matriculation process, students may also be required to:

1. submit financial aid forms
2. comply with international student requirements
3. submit other necessary program-specific data
4. participate in initial course placement evaluation (ASSET/COMPASS)

Applicants desiring admission to some programs may be required to meet special enrollment requirements including, but not limited to, satisfactory high school grades, evidence of potential for success in the field, and/or an enrollment interview. Once a program selection is made, certain prerequisites, including, but not limited to, health examinations, drug testing, and criminal background checks, may have to be met prior to enrollment in the particular program or course.

SECONDARY INITIATIVES

Dual Credit

Ivy Tech Community College of Indiana offers opportunities for high school juniors and seniors to enroll in dual credit programs that allow them to receive high school credit and advanced standing college credit at the same time. Each Ivy Tech campus has secured agreements with area high schools to offer dual credit in a variety of courses. Students should contact their school administration to learn what dual credit courses exist at their own high schools. Requirements to participate include admissions, readiness requirements for the course and course prerequisites.

TRANSFERRING CREDIT TO THE COLLEGE

The College encourages students who have previously attended other regionally accredited colleges and universities or adult education programs to forward transcripts to Ivy Tech prior to enrollment or re-enrollment for consideration of transfer of credit and/or advanced placement. Only courses with grades of C- or higher are eligible for review for credit transfer. Students are responsible for providing pertinent course descriptions and/or copies of the college catalog(s) if further documentation is needed to facilitate the review. The College will assist individuals with evaluation of prior educational experiences.

ADMISSION PROCEDURES AND SUPPORT DOCUMENTS—INTERNATIONAL STUDENTS

International students must meet College admission standards and certain other requirements. International students should apply for admission to Ivy Tech at least 90 days prior to the beginning of the term they wish to attend. International students must provide a foreign transcript equivalency evaluation from an approved evaluator indicating that they have attained the equivalent of a US high school graduation. The following are approved College evaluation agencies: World Education Services, Educational Credential Evaluators, Inc., and AACRAO – Foreign Educational Credential Service. The type of evaluation report required by Ivy Tech is the general report. Students whose first language is not English must also demonstrate English language proficiency. The Test of English as a Foreign Language (TOEFL) with a minimum score of 550 for the written exam or 213 for the computerized version is required and results must be sent directly from Educational Testing Services (ETS) to the College. Scores will be considered if they are less than two years old. A language proficiency test may be waived if an applicant is from an English-speaking country, has completed secondary school in the US with passing grades in non-ESOL English courses, or is a college transfer student who has completed standard freshman English, with a grade of C- or higher, from a regionally accredited institution.

International students must provide proof of adequate financial support for College fees and living expenses for each year while attending Ivy Tech. International students should submit a letter from an appropriate sponsor, government official or bank official stating that sufficient funds are available to cover the cost of the student's education and that these funds will be available to the student while attending college in the United States. International students must purchase the College's insurance coverage for medical, accident and repatriation expenses, unless they obtain a waiver. Degree-seeking students must also participate in initial course placement evaluation.
STUDENT ORIENTATION
All new degree students are encouraged to participate in a student success seminar/orientation program prior to or during the first week of classes. Orientation is designed to assist students in making the transition to a college environment. Topics include registration procedures, career and employment services, financial aid, business office services, instructional programs, tutoring services, college activities, and policies and procedures. Some limited enrollment programs may require attendance at an information session prior to program application.

ADVANCED PLACEMENT CREDIT AND CREDIT FOR PRIOR LEARNING
Credit by the College is granted for acceptable test results under the following programs:

- College-Level Examination Program (CLEP), Advanced Placement (AP), DANTES, and tests given by Ivy Tech instructors as specific subject test-outs. Transfer credit is awarded for appropriate grades from courses taken at other regionally accredited institutions of higher learning.

- Advanced standing is given to students who have met the requirements for regionally determined dual and articulated secondary and post-secondary courses.

- Credit is also awarded for properly documented prior learning experiences and workforce certifications. Ivy Tech acknowledges the prior learning experiences of students by awarding credit for appropriate prior learning. Such prior experience could include but is not limited to the following: workplace learning, military experiences and training, nationally recognized testing, certifications, and community service. The awarding of credit for prior learning experiences is limited to technical coursework. General education competencies must be validated through nationally recognized testing. If program accreditation or licensure issues in certain programs preclude the awarding of PLA credit, the College will not award PLA credit for coursework in that program. If you believe you have prior learning experiences that might help you earn credit in your degree program, please contact the PLA Coordinator at the campus in which you are enrolled.

The following time limits exist for the application of credit to Ivy Tech:
- CLEP and DANTES — five years after date of test
- AP — one year after high school graduation
- Transfer credit — ten years after course was taken

Registration
REGISTERING FOR COURSES
The registration process includes financial aid and program advising, selection of courses and payment of fees. Newly admitted students will be notified when to register for their first classes. Specific days are set aside for registration before the beginning of each semester. Students should seek assistance in course selection from faculty advisors or advisors in the Office of Student Affairs before registering for classes. The Office of Student Affairs can supply information concerning registration.

Note: Students are registered when fees have been paid or payment arrangements have been made.

OPEN/LATE REGISTRATION
Open registration is held before the beginning of the term. Students who are registered before the first day of classes may add a course through the first week of the semester (only for a 16-week semester).

COURSE DROP AND ADD
Students may drop a course with no record on the transcript, or may add a course in the first week of the regular (16-week) semester. Courses are not officially dropped until the necessary forms have been completed and returned to the Office of Student Affairs. After the first week of the regular semester, students must receive the permission of the instructor to add a course. All students who are not in a paid or arranged to pay status will be dropped from classes according to a set schedule. Once dropped, students may not attend class or be graded. If a student has not paid or is not current with the payment schedule by the last date for withdrawal, the student shall be withdrawn from the class, and the tuition balance is still due and payable.

STUDENT WITHDRAWAL
From the end of the second week to the end of the week marking the completion of 75 percent of the course, a student may withdraw from a course by filing a change of enrollment form at the Registrar's Office. Records of students withdrawing from courses indicate a "W" status rather than a grade when the withdrawal process is completed. Withdrawal is complete when the necessary forms have been submitted to the Office of the Registrar. A student who ceases to attend class after the last day to withdraw will receive a grade commensurate with course requirements.

Note: Withdrawing from class may affect or cancel financial assistance. Students receiving financial assistance should check with the Financial Aid office before withdrawal from a course or courses.

College Fees
The College seeks to provide quality education at the lowest possible cost. General fees are based on the number of credit hours for which the student has registered. Out-of-state students pay an additional fee per credit hour. Students or their families may be eligible for federal tuition tax credits in accordance with the Taxpayer Relief Act of 1997.

TUITION AND FEES
Tuition and fees are determined prior to the start of the term.

Transcripts and other official College documents will not be issued if there is an account balance.

Fees are established by the State Board of Trustees and are subject to change.

Fees may be assessed for such items as consumable instructional supplies for certain classes.

Additionally, students may incur costs for textbooks, tools, uniforms, other equipment, deferral/payment plans, and special examinations.

ADDITIONAL EXPENSES
The following additional expenses may apply, depending upon the program of study:

Books: All students are expected to purchase the textbooks for their respective programs. The cost of books varies by class.

Tools: The College furnishes major equipment items for instruction. However, in many programs or courses, students must furnish additional hand tools and equipment.

Uniforms and other special equipment: Several programs require students to furnish uniforms and special safety clothing.

Charges for consumable instructional materials: In some courses an additional charge for instructional materials may be required.
PAYMENT OF FEES
All enrolled students must make arrangements at the time of registration to pay all applicable fees. A student is officially registered and allowed to attend classes when all fees have been satisfied or arrangements for payment have been made.

REFUND POLICY
Students choosing to drop a course or courses must notify the College in writing using the change of enrollment form. Students choosing to withdraw from all courses may begin the withdrawal process in writing. The fee refund for voluntary withdrawal from a class, when applicable, will be processed only after the student files a change of enrollment form with the Registrar’s Office. The Student Information System processes student refunds using the percentages noted below. Refunds are calculated on business days regardless of holidays. Technology fees, consumable fees, and tuition are refunded at the same rate noted below. With regard to the technology fee, if the student withdraws from all of his/her classes during the 100 percent refund period, the technology fee will be refunded. If the student is enrolled in any classes beyond the 100 percent refund period, the technology fee will not be refunded. For purposes of the refund period, the “first day” is calculated differently for terms of 12 weeks or more and for terms of less than 12 weeks. For terms of 12 weeks or more, the refund period would begin on Monday of the first week of classes that a particular course meets. For terms of less than 12 weeks, the refund period would begin on the first day the course meets. For terms of less than 12 weeks, if a class begins on a Saturday or Sunday, the refund period would begin on the following Monday.

<table>
<thead>
<tr>
<th>Term Length</th>
<th>Refund Schedule</th>
<th>1st-10th day</th>
<th>1st-8th day</th>
<th>1st-6th day</th>
<th>1st-4th day</th>
<th>1st-2nd day</th>
<th>1st day</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 weeks</td>
<td>100%</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-15 weeks</td>
<td>100%</td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-11 weeks</td>
<td>100%</td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-9 weeks</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-7 weeks</td>
<td>100%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td>Less than 4 weeks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

Financial Aid
Ivy Tech participates in various types of federal and state financial aid programs that provide assistance to many students. Ivy Tech also provides financial assistance to students from its own resources. Students are encouraged to carefully explore all financial aid options at their campus. Students must complete the Free Application for Federal Student Aid (FAFSA) to be considered for any form of financial aid. This form is available online at http://www.fafsa.gov. Financial aid is available for both full- and part-time students regardless of age, race, or sex. To qualify for financial aid all applicable requirements must be met. For federal and state financial aid programs students must:

- Be a regular student enrolled or accepted for enrollment in an eligible program;
- Not be enrolled in secondary school;
- Be a U.S. citizen or national or permanent resident;
- Maintain satisfactory academic progress in a course of study;
- Not owe a refund to a federal grant or loan program.

Students who have completed the FAFSA and submitted all required documentation will receive an email notification to their college email address asking them to check Campus Connect self-service for details on their award.

Information on all financial aid programs, commonly asked questions, Title IV school codes, financial aid forms, financial aid contacts, and awarding and disbursement policies are available online at www.ivytech.edu/financialaid

The following are financial aid programs:

- Federal Pell Grants
- Academic Competitiveness Grant
- Federal Supplemental Education Opportunity Grants
- Federal Work Study
- Federal Stafford Loans
- Federal Parent Loan for Undergraduate Students
- Frank O’Bannon Awards
- Part-time Grant
- Child of Disabled Veteran Awards
- Veteran’s Benefits
- Indiana National Guard Supplemental Grants
- 21st Century Scholar Awards
- Ivy Tech Foundation Scholarships

While students may apply for federal financial aid throughout the year, Ivy Tech Community College has established financial aid processing priority dates for each enrollment period. If all financial aid documents are submitted by the processing priority date, financial aid will be packaged prior to the start of class. Although disbursements will not occur until later into the term, when these dates are met students will be able to charge tuition against anticipated financial aid. Please reference Campus Connect for the dates that apply to each term.

For priority consideration for state assistance (SSACI), the FAFSA must be received by the federal processor after January 1 but on or before March 10 preceding enrollment for the following fall semester. Otherwise, students may apply at anytime during the school year. However, students are encouraged to apply at least 4 weeks prior to the enrollment for the term they wish to attend.

Application Procedures for Financial Aid

Students may apply on-line at www.fafsa.gov. Because application procedures, deadlines, eligibility regulations and refund policies vary with different types of student aid programs, interested students are encouraged to contact the Financial Aid Office at their earliest opportunity. Applying on-line is faster and easier than using a paper FAFSA. Students should allow two weeks for electronic applications or six to eight weeks for processing paper financial aid.

Student Records

Ivy Tech maintains an educational record for each student who is or has been enrolled at Ivy Tech. In accordance with the Family Educational Rights and Privacy Act of 1974, as amended, the following student rights are covered by the act and afforded to all students at Ivy Tech:
1. The right to inspect and review information contained in the student's educational records.
2. The right to challenge the contents of the student's educational records.
3. The right to a hearing if the outcome of the challenge is unsatisfactory.
4. The right to submit an explanatory statement for inclusion in the educational record if the outcome of the hearing is unsatisfactory.
5. The right to prevent disclosure, with certain exceptions, of personally identifiable information.
6. The right to secure a copy of the institutional policy.
7. The right to file complaints with the Department of Education concerning alleged failures by Ivy Tech to comply with the provisions of the act. The name and address of the office that administers FERPA is: 1 Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington, DC 20202-4605.

Each of these rights, with any limitations or exceptions, is explained in the Student Affairs Policy and Procedures Manual, a copy of which may be obtained in the Office of Student Affairs or the library.

At the College's discretion directory information may be provided in accordance with the provisions of the act without the written consent of the student unless the student requests in writing that such information not be disclosed (see below). The items listed below are designated as directory information and may be released for any purpose at the discretion of Ivy Tech unless a request for non-disclosure is on file.

1. Name, address, e-mail address, telephone number, dates of attendance, enrollment status
2. Previous institution(s) attended, major field of study, awards, honors, degree conferred.
3. Past and present participation in officially recognized activities, date and place of birth.

Students may request the withholding of directory information by notifying the Registrar's Office in writing within ten (10) calendar days from the first scheduled day of the term. The request will be in effect until rescinded by the student. The student should carefully consider the consequences of any decision to withhold directory information. Regardless of the effect upon the student Ivy Tech assumes no liability for honoring a student's request that such information be withheld. Failure on the part of a student to request the withholding of directory information indicates the student's approval of disclosure.

In addition, student records are held in security by the College. Transcripts on file with the College from high schools and other institutions of higher education cannot be released by Ivy Tech. A student needing a transcript from high school or another college should request it directly from that institution. The Registrar's Office will assist students wishing to see and review their academic records and student files. Any questions concerning the student's rights and responsibilities under the Family Educational Rights and Privacy Act should be referred to the Office of the Registrar.

### DEPENDENCY PROVISION

Ivy Tech reserves the right, as allowed under the Federal Educational Rights and Privacy Act of 1974, to disclose educational records or components thereof without written consent to parents of dependent students as defined according to the Internal Revenue Code of 1954, Section 152 (as amended). A certified copy of the parent's most recent federal income tax form establishing the student's dependency status shall be required before any educational records or components thereof will be released to the parent of any student.

## Academic Grading

The academic grading system has both grades and status codes, both of which are explained in greater detail later in this section. Grades reflect the quality of performance and level of competency achieved by students who complete a course. Formal grades are assigned at the end of each enrollment period. Instructors determine and assign grades and status based on objective appraisal and evaluation of the student's performance. Semester grade reports are available on the web and by phone.

In all courses the quality of the student's work determines the grade earned. For some courses quantity of work, speed of work, or both also are considered in determining the grade. Class participation also may be considered by instructors in awarding grades. In certain instances a status code appears on the student's record in place of a grade. Status represents a condition to which no letter grade can be assigned.

### GRADES

The quality of student performance or competency level, as determined by the instructor at the completion of a course, is indicated by a letter grade of A, B, C, D or F. Ivy Tech does not use pluses and minuses as a part of its grading system. Each designation has a numerical value per credit hour, referred to as "quality points." The meaning and quality point value per credit hour of each letter grade are shown in the table below:

<table>
<thead>
<tr>
<th>STATUS</th>
<th>QUALITY POINTS/CREDIT HOUR</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
<tr>
<td>FW</td>
<td>0</td>
</tr>
</tbody>
</table>

Academic skills advancement courses are assigned grading designations, but no quality points or quality hours are earned. Grades for academic skills advancement courses are preceded by the letter "S."

### STATUS CODES

Status codes describe the state or condition of a course on the student's record for which a grade has not been awarded. Status code indications carry no quality points. The types of status codes and the symbols used to indicate them are shown below:

<table>
<thead>
<tr>
<th>Status</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Incomplete</td>
</tr>
<tr>
<td>AU</td>
<td>Audit</td>
</tr>
<tr>
<td>S</td>
<td>Satisfactory</td>
</tr>
<tr>
<td>U</td>
<td>Unsatisfactory</td>
</tr>
<tr>
<td>V</td>
<td>Verified Competency</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal</td>
</tr>
</tbody>
</table>

These status codes are used for the following reasons:
I—Incomplete
     "I" designations are awarded to students who have actively pursued a course and are doing passing work at the end of the course but who have not completed the final examination and/or other specific course assignments.

To remove an "I" designation, a student must meet with the instructor and make arrangements to complete course requirements in a specified period not to exceed 30 days beyond the star of the following term. The instructor must submit the grade within 31 calendar days of the beginning of the following term in which the student received the "I" designation.

AU—Audit
     "AU" status indicates enrollment in a course for which no grade or credit is awarded. The fees for audited courses are the same as those for courses taken for credit. Audit status must be declared no later than the end of the first week of classes with approval of the instructor or program chairperson.

W—Withdrawal
     A "W" status code will be used for student and academic withdrawals. Student withdrawal (W) is a status referring to voluntary student withdrawal beginning at the start of the third week of the course for a 16-week semester up to the end of the week marking the completion of 75 percent of the course. To be considered officially withdrawn from a course the student must file change of enrollment form with the Office of the Registrar. After 75 percent of the term has elapsed a student may withdraw (with the same result as indicated above) only if documented extenuating circumstances are submitted to and approved by the Chief Academic Officer or his/her designee.

S—Satisfactory
     The "S" indicates satisfactory completion of course work in situations where either a status of satisfactory or unsatisfactory (pass/fail) has been arranged by prior agreement. Requests for this type of grading must be declared at time of registration. Courses graded with an "S" do not count toward graduation requirements.

U—Unsatisfactory
     The "U" indicates unsatisfactory completion of course work in situations where either a status of satisfactory or unsatisfactory (pass/fail) has been arranged by prior agreement. Requests for this type of grading must be declared at time of registration. The "U" differs from an "F" in that quality points are not computed.

V—Verified Competency
     The "V" indicates satisfactory completion of course work in situations such as test-out, credit for prior learning experience or training, College Level Examination Program (CLEP), etc. Credit gained through this method may be used to satisfy degree requirements. This status is approved by the Chief Academic Officer upon recommendation of a faculty advisor following completion of necessary verification and documentation of competency.

CREDIT HOURS
     Credit is described in semester hours (the number of credits taken per semester). The number of credits is determined by the demands of the course, course work and by the number of contact hours - the hours actually spent in the classroom or laboratory.

CREDIT HOURS/LOAD
     A credit hour represents one hour of lecture, two hours of laboratory, three hours of clinical/practicum/studio, or five hours of internship instruction per week for the semester. A three-credit-hour lecture course, for example, meets 48 hours during a 16-week semester (3 hours/week x 16 weeks). An average full-time semester class load in most Ivy Tech programs consists of 12-15 credit hours. A class load of more than 18 credit hours requires approval of the Chief Academic Officer or designee.

ENROLLMENT STATUS
     Enrollment status for the fall and spring semesters is determined by registered total semester credits:

<table>
<thead>
<tr>
<th>Enrollment Status</th>
<th>Full-time Student</th>
<th>3/4 Time</th>
<th>1/2 Time</th>
<th>Less Than 1/2 Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 or more credits per semester</td>
<td>9-11 credits per semester</td>
<td>6-8 credits per semester</td>
<td>1-5 credits per semester</td>
<td></td>
</tr>
</tbody>
</table>

A first-year student, by definition, is one who has completed 30 or fewer semester credit hours.

A second-year student is one who has completed 31 or more semester credit hours.

For the summer period, enrollment status for Title IV financial aid and for all other purposes is as follows:

<table>
<thead>
<tr>
<th>Enrollment Status</th>
<th>Full-time</th>
<th>3/4 Time</th>
<th>1/2 Time</th>
<th>Less Than 1/2 Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 credits</td>
<td>9-11 credits</td>
<td>6-8 credits</td>
<td>1-5 credits</td>
<td></td>
</tr>
</tbody>
</table>

QUALITY POINTS
     Quality points are numerical values indicating the quality of student performance in credit courses: A=4; B=3; C=2; D=1; F/FW=0. The quality points earned for a course equal the quality point value times the number of credits. A student who earns an "A" in a four credit course earns 16 quality points: the quality point value (4) x the number of credits (4) = the total quality points (16).

GRADE POINT AVERAGES
     The grade point average (GPA) is a numerical indication of the student's performance in all courses in which quality points can be earned. The GPA is calculated by dividing the number of quality points earned by the number of credits earned. The term and cumulative GPA, calculated to three decimal places, will appear on the online grade report as well as on the transcript.

Under extenuating circumstances a student may petition the Chief Academic Officer to exclude coursework from the cumulative GPA calculation. Courses excluded from the cumulative GPA calculation as a result of a petition will not be counted as earned and cannot be used to satisfy program requirements for degree-seeking students. Grades for excluded courses will remain in the student's term GPA, and the courses will continue to appear on the transcript, however the cumulative GPA will reflect the exclusion of the coursework. Contact the Office of Student Affairs for additional information.

IMPROVING A GRADE
     Students may attempt to improve grades by repeating courses (allowable once per course). Financial aid recipients, however, should review their situations carefully since payment for repeated courses can be disallowed. Student transcripts will contain a complete record of all
activity. The student's grade point average will reflect the highest grade earned.

DEAN'S LIST
The Dean's List, prepared and published each term, gives recognition to degree-seeking students who achieve a minimum 3.50 grade point average in non-academic skills advancement courses with no Ds or Fs while earning six or more Ivy Tech credits during the semester and have earned at least a total of 12 non-academic skills advancement credits during their course of study.

GRADE REPORTS
Grade reports are available on the web via Campus Connect. A student may also request a copy of the academic transcript from the Office of the Registrar, which lists all coursework attempted at Ivy Tech. Unofficial transcripts are available on Campus Connect.

PRIOR COURSEWORK
Credits taken more than ten years prior must be reviewed by the Vice Chancellor for Academic Affairs to be applied to a degree or certificate objective. This policy applies to credits accepted in transfer from another institution and to credits taken at Ivy Tech prior to declaring the new degree or certificate objective to which the credits may apply.

ATTENDANCE
Regular attendance is expected at scheduled class meetings or other activities assigned as part of a course of instruction. Attendance records are kept by instructors. When personal circumstances make it impossible to attend scheduled classes and activities, the College expects students to confer with instructors in advance. Instructors can offer students the option of making up the material missed.

Absences may be considered by instructors in awarding grades and considering involuntary withdrawal. Students who must interrupt their Ivy Tech education to fulfill Reserve and National Guard annual tour requirements should present official military orders to their instructors prior to departure for duty. Students are not excused from completion of the course work and should make arrangements with their instructors to complete all work.

Standards of Progress
A student who has declared a degree or certificate objective and has 15 or more cumulative quality hours must maintain a 2.00 minimum cumulative GPA to be considered in satisfactory academic standing.

Academic Monitoring — Any student who has a cumulative GPA below 2.00 after completing between six and 14 quality credit hours will be placed on Academic Monitoring for the following term. Students with between six and 14 completed quality credit hours and a cumulative GPA below 2.00 will remain on Academic Monitoring until their GPA rises to 2.00 or above, at which time they will be returned to Good Standing.

Academic Probation — Any student who has a cumulative GPA below 2.00 after completing 15 or more quality credit hours will be placed on Academic Probation for the following term. Students on Academic Probation will be returned to Good Standing when the cumulative GPA rises to 2.00 or above at the end of a semester.

Any student who is on Academic Probation and has not maintained a cumulative GPA of 2.00 or above, but is earning a minimum of 2.00 GPA for the semester will remain on Continued Probation. If the student's cumulative GPA rises to 2.00 or above at the end of a semester, the student will be returned to Good Standing.

Academic Suspension — Any student on Academic Probation or Continued Probation whose cumulative GPA is below a 2.00, and who does not maintain a semester GPA of at least 2.00, will be placed on Academic Suspension.

1st time on suspension — must sit out one semester
2nd time on suspension — must sit out two semesters
3rd time on suspension — must sit out six semesters (2 academic years) mandatory (After this suspension, student must petition for readmission with the regional Vice Chancellor of Academic Affairs or designee)

Any student placed on Academic Suspension will have the right to appeal to the regional Vice Chancellor of Academic Affairs or designee. If the student wishes to continue in classes for the next semester, an appeal must be filed in time to register for, and begin, classes the semester following placement on Academic Suspension. Appeals should be considered only for students who have extenuating circumstances and can be substantiated by objective documentation.

Upon returning from each suspension, the student will remain in Academic Probation status and must achieve a 2.00 GPA or higher each term. If the student's cumulative GPA rises to 2.00 or above at the end of a semester, the student will be returned to Good Standing.

Suspension from one campus constitutes suspension from the College. Petitions for readmission can be initiated at the campus where the student intends to enroll.

The College may elect to address individual mitigating circumstances administratively, with appropriate documentation to justify continuation of academic eligibility. The student may always exercise his/her right of due process.

Students receiving financial aid must demonstrate satisfactory progress toward completion of a program within a specified time frame based on their enrollment status. Students also must successfully complete the minimum number of credit hours required for that status each semester. All students are expected to maintain a minimum of a 2.00 cumulative GPA to be eligible for graduation. Questions about standards of progress and academic standing should be addressed to the Office of Student Affairs.

For more information on meeting satisfactory academic progress for students receiving financial aid, please visit www.ivytech.edu/financialaid/awards-and-policies.html.

SPECIAL PROBLEMS
The Office of Student Affairs is available to help with special problems, exceptional circumstances, and filing grievances (see Student Grievances). Special problems, exceptional circumstances, and grievances are ultimately the responsibility of the Chief Administrative Officer of the region, designated staff and committees.
Assessment

Assessment is a tool that supports the College mission to prepare Indiana residents to learn, live, and work in a diverse and globally competitive environment. A college-wide assessment plan has been developed to measure students’ academic success. The plan reflects the College’s commitment to enhanced student learning from initial evaluation for course placement through outcomes assessment and subsequent institutional improvement that occurs as a result of these activities.

Initial Placement

Students take ASSET or COMPASS assessments to determine placement into appropriate courses.

Program Outcomes

Student’s learning is assessed at or near the end of their program to determine how well they demonstrate knowledge and skills required to be successful in their chosen fields. The methods used to assess technical skills vary by program. Some are assessed with established industry-recognized instruments, college-developed instruments, portfolios, and other means appropriate to the particular program.

General Education Outcomes

The College has identified eight general education outcomes designed to provide students with the tools to be productive, responsible citizens and lifelong learners. The general education outcomes are:

1. Demonstrate critical and creative thinking.
2. Recognize and understand cultural and individual differences, in terms of both contemporary and historical perspectives.
3. Recognize and understand social, political, civic, and environmental responsibilities relative to our society.
4. Apply basic scientific concepts in a variety of settings.
5. Communicate effectively in written, oral, and symbolic forms.
6. Exhibit quantitative literacy.
7. Apply ethical reasoning.
8. Demonstrate the acquisition and use of information.

General education outcomes are assessed at or near the end of the student’s program in the capstone course. Students’ level of performance is compared with community college students nationally. Students who score above the national average receive a certificate for use in their professional portfolios. Individual assessment results are also compared with student’s initial assessment to determine whether the students’ learning improved during their time at the College.

Assessment results are reviewed and analyzed by College faculty, staff, and administrators. The results are used to inform changes or improvements in curriculum, academic support services, College procedures, etc. Ongoing assessment and evaluation enable the College to ensure high quality teaching and learning and effective academic and student support systems.

Graduation

The Associate of Arts, Associate of Fine Arts, Associate of Science, Associate of Applied Science degrees, Technical Certificates and Certificates are awarded by the College to students who meet graduation requirements. Graduating students may be charged a fee to cover the cost of the ceremonial cap and gown. A student is considered eligible for graduation when requirements for graduation have been fulfilled. Each student entering the final semester prior to graduation who wishes to participate in the ceremony must complete an application for graduation. The application will be certified by the student’s program advisor and forwarded to the Registrar’s Office where the appropriate diploma will be prepared. Graduating students will participate in outcomes assessments. To graduate with an Associate of Arts degree, an Associate of Fine Arts degree, an Associate of Science degree, an Associate of Applied Science degree, a Technical Certificate, or a Certificate, the student must:

1. Attain a minimum grade point average of 2.00 in the required technical and general education courses;
2. Completion of at least 15 degree credits in the curriculum as a regular student of Ivy Tech, and not through test-out or other means of advanced placement;
3. Successfully complete the required number of credits;
4. Satisfy all financial obligations due the College; and
5. Satisfy program accreditation standards that may have additional requirements.

Transferring to Another Institution

Ivy Tech has articulation agreements under which students may transfer individual courses or entire programs of study to a number of public and private institutions. A student, depending on his or her goals, may choose to transfer to another college or university and pursue a bachelor’s degree after completion of a series of courses or completion of a two-year degree program at Ivy Tech. Some of these agreements are collegewide and some pertain to specific campuses of Ivy Tech.

The selection of an institution for transfer should be an individual decision based upon the extent to which credits will transfer, compatibility of degree programs, location, availability of programming, philosophy, and cost of attending the transfer school. Opportunities are available to Ivy Tech students to transfer and complete a baccalaureate program as a resident or commuting student.

Opportunities are available to pursue a bachelor’s degree using distance technologies which will allow a student to complete a degree program within the ir community, even at an Ivy Tech campus.

Students are encouraged to review transfer options with their advisors, to consult the current catalog of the institution to which they wish to transfer, and to contact the institution to which they wish to transfer. Information about statewide program transfer is included with many programs in this catalog. Additional opportunities for course and program transfer with both public and independent colleges and universities are available. Students should contact the transfer office of their local Ivy Tech for further information.

TransferIN

Courses marked with “TransferIN” after the title are part of the Indiana Core Transfer Library. Indiana is working to help you transfer college credits more easily. To enable students to connect college credits, Indiana has developed the Core Transfer Library (CTL) – a list of courses that will transfer among all Indiana public college and university campuses, assuming adequate grades. Core Transfer Library courses will meet the general or free elective requirements of undergraduate degree programs and most CTL courses will also count towards degree program requirements, if an equivalent course is taught at your new campus. For more information about the
Student Support Services

ACADEMIC SKILLS ADVANCEMENT PROGRAM SERVICES
To ensure that every student has the opportunity to be successful, Ivy Tech offers an Academic Skills Advancement program. This developmental program is designed for students enrolled in programs or courses at the College who are encountering academic difficulty or who have been identified as having encountered academic difficulty in the past. Services provided through the Academic Skills Advancement program include diagnostic testing and assessment, course placement services, and instruction.

The need for these services may be identified at the time of admission. However, a student may use any or all services upon encountering academic difficulty during a course of study. Academic skills advancement instructors and laboratory technicians provide developmental instruction in the areas of math, communications, sciences, writing, and study skills. Some campuses offer GED preparation and English to speakers of other languages (ESOL). Delivery of instruction may be in the form of an academic skills advancement course in a classroom setting, one-on-one tutorial assistance, computer-based instruction or a self-paced study in the academic skills center. For further information about the College's Academic Skills Advancement program contact the Office of Student Affairs or the academic skills center.

ACADEMIC ADVISING
Academic Advisors are committed to engaging students in intentional, collaborative, supportive, and meaningful partnerships. Grounded in teaching and learning, Academic Advisors will assist students in achieving their personal, educational, cultural, and career goals while becoming self-directed, life-long learners. Academic advising begins with orientation and continues through a series of meetings each semester during the student's first year. Students are assigned to an academic advisor depending on the student's area of interest and the advisor's area of expertise.

Academic advising means that students must meet with their academic advisor or faculty advisor before registering for classes.

Academic advising will help students to:
1. Successfully access and navigate higher education.
2. Clarify life and career goals.
3. Develop goal-oriented educational plans.
4. Interpret academic requirements and select appropriate courses.
5. Access available internal and external resources that enhance their education.
6. Identify other experiences that will enhance their life, educational, and cultural goals.
7. Develop critical thinking, decision-making, and independent learning skills.
8. Evaluate their progress toward career and life goals, degree completion, and transfer.

CAREER SERVICES
Career Services provides many types of services to all students, graduates, and alumni, including: career exploration, resume writing preparation, career fair information, and assistance in seeking employment while in school and upon graduation. Students, graduates, and alumni interested in assistance with job search strategies may register with their local Career Services office. Upon registration, Career Services staff will:

1. Advise candidates of the College's career services.
2. Provide occupational information including employment trends and local and state occupational outlook data.
3. Assist the registered candidate in preparing a packet of credentials for use in finding a job. This packet may include:
   a. A resume of the candidate's education and employment experience, and
   b. Personal letters of recommendation verifying the student's employability.
4. Create and maintain folders containing original copies of the candidate's credentials for all registered candidates.
5. Prepare copies of credentials used by the candidates for referral to prospective employers.

Alumni may update their credentials whenever they wish to use the Career Services Office. Students or alumni registered with the Career Services Office will be informed of employment opportunities know to the Career Services Office. These opportunities are also posted on campus job boards and online. JobZone (http://www.ivytech.edu) is the Ivy Tech online referral system. Employers can post positions and students can post resumes at no cost. Local job postings as well as statewide listings can be accessed through JobZone. Employers who register with the Career Services Office are granted access to JobZone and are provided with the names of all qualified candidates without regard to gender, race, age, national origin or disability. Registered students or alumni are eligible for interviews with appropriate prospective employers. See the Career Services Office for additional information or visit www.ivytech.edu.

COLLEGE BOOKSTORE
Each campus maintains a bookstore where students may buy textbooks and supplies.

LIBRARY
Libraries at each campus provide access to materials, information and services that support students' educational needs. In addition, libraries have career exploration materials, interlibrary loan services, general and technical periodicals, recreational reading and audio-visual materials and equipment. In addition to print materials the College provides a variety of online databases, many of which are full-text, that are available to students at all campuses.

DISABILITY SUPPORT SERVICES
Reasonable accommodations for persons with disabilities will be made to ensure access to academic programs, services, and employment in accordance with section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. College programs and facilities are designed to be accessible to students with disabilities. Each campus has designated parking and special restroom facilities for persons with disabilities. The College staff works with the Department of Vocational Rehabilitation and other service agencies to assist students with disabilities through available local community resources.

It is the student's responsibility to contact the campus Disability Services representative to request accommodations; any information shared will be kept confidential unless the student authorizes release and exchange of specified information. Requests for accommodations and documentation of disability must be received one month prior to enrollment for the next academic term. Additional time may be required for some requests. Every effort will be made to provide reasonable accommodations in a timely manner.
Student Life

ORGANIZATIONS AND ACTIVITIES
The College recognizes the educational, recreational, and social values of student organizations and extracurricular activities. Students are encouraged to participate in any or all phases of the student activities program as long as participation does not interfere with studies. All student organizations operate under the policies and guidelines set for the College by the State Board of Trustees. Approval by the Student Government and the administration is required of all student organizations seeking to make use of College facilities. All approved organizations must be open for membership to all eligible candidates and must make available to the Student Government records of officers, membership, and financial transactions.

STUDENT GOVERNMENT ASSOCIATION (SGA)
Students in each region are provided opportunities to participate in student organizations through the Student Government Association (SGA). SGA is the representative governing body of the students. SGA representatives are elected or selected according to the by-laws of each regional SGA constitution and serve as stated in those bylaws. The student body membership may consist of representatives of each program area and an advisor as established in the by-laws.

SGA exercises the authority, unless otherwise delegated, to legislate on student matters subject to the approval of appropriate College administrative offices. The constitutions of all student organizations must be approved by a quorum of the SGA, consisting of a simple majority of the total membership and one staff advisor, or as otherwise stated in the by-laws.

The functions of SGA include:
1. Communication of bona fide concerns of the student body to appropriate College officials with suggestions for improvement.
2. Approval of student organizations beneficial to student life and worthy of being part of the College.
3. Assurances that copies of the constitution, by-laws and statement of purpose and objectives of each recognized student organization are on file in the Office of Student Life.
4. Planning and conducting appropriate and socially responsible extracurricular student activities.
5. Submission of student activity budgets for review and approval by the regional administration.

PHI THETA KAPPA
Phi Theta Kappa is an international honor fraternity for two-year colleges. Its purpose is to recognize and promote academic excellence. This is done by providing leadership development opportunities for service in chapter activities on campus and in regional Phi Theta Kappa activities.

Membership in Phi Theta Kappa is by invitation only and is based on a minimum grade point average as well as completion of a specified number of semester hours. Contact the Office of Student Life for further information.

INTRAMURAL SPORTS
College sports activities consist of intramural sports sponsored by the Office of Student Life. Leagues can be formed when student interest justifies their organization. All College sports activities must be approved and sponsored by the administration.

CLUBS
Students wishing to organize hobby, social or special interest clubs should submit proposals to the Office of Student Life. SGA is authorized to charter clubs upon approval by the administration. Each club must have a president and vice-president, a full-time employee or regional administrative approved part-time position acting as advisor, and a constitution and by-laws.

SOCIAL ACTIVITIES
All group activities of the College must be approved by the Office of Student Life. Classes, clubs and other groups should plan and conduct social activities for their members. The Office of Student Life organizes and conducts social activities and gatherings in which all students are encouraged to participate, and to which many will be open to guests.

PROFESSIONAL ORGANIZATIONS
Student chapters of various professional organizations are formed in the same manner as other student organizations and are subject to the same requirements.

LEADERSHIP DEVELOPMENT
The College sponsors a Student Leadership Academy, an experience to help students better understand the roles of leaders and the leadership potential that exists in everyone. Students must apply to join the Leadership Academy. Contact the Office of Student Life for further information.

COMMUNITY SERVICE
Community service is an important aspect of becoming a well-rounded citizen. Community service may occur through classroom activities, student government, student clubs and organizations, and partnerships with community agencies. Please check with the Office of Student Life for volunteer opportunities.

IVY TECH ALUMNI ASSOCIATION
Many of the regions have established chapters of the Ivy Tech Alumni Association. Membership in the association is open to current and former students. Contact the Office of Student Affairs for further information.

E-MAIL
Each student has an Ivy Tech e-mail address via the Campus Connect college portal. Since departments and instructors will be communicating with you via your college e-mail account, it is important that you can access the account without difficulty. Students who do not use their Ivy Tech e-mail accounts may miss information from the College that is vital to their success. Official College notices and helpful information will be provided to you through your Ivy Tech e-mail. Ivy Tech will use your Ivy Tech e-mail account to notify you of changes in your accounts, in your courses, and in college policies and procedures. You are responsible for the information and notices that are sent to you via your assigned e-mail account. It is suggested that you set your web browser to Campus Connect and check your account every day. The Student Computing Practices are included on the site.

CAMPUS CONNECT: THE COLLEGE PORTAL WEBSITE
Campus Connect is available at http://cc.ivytech.edu. All Ivy Tech students are given an account to
Housing

Ivy Tech is a commuter college and does not operate residence halls. However, the Office of Student Affairs may be able to respond to questions concerning housing in the community. Ivy Tech accepts no responsibility for locating, approving, or supervising local student housing.

Student Parking

As part of registration, some campuses require students to register their motor vehicles and obtain a parking sticker. A special permit is required to park in spaces for persons with disabilities. Stickers are to be displayed in the vehicle while parked on campus, and students may park only in designated student parking areas. Vehicles improperly parked in areas reserved for the disabled, visitors, or others may be towed at the expense of their owners.

Student Accident Insurance

For students registered in credit courses, the College provides accident insurance in a designated amount for injuries sustained while participating in College-sponsored activities. The activity must take place on College premises or on any premises designated by the College. Students are also covered while traveling to and from College-sponsored activities as a member of a group under College supervision. It is the student’s responsibility to report injuries promptly to the instructor or to the Office of Student Affairs. The insurance is for a specified minimum amount of coverage. It is not intended to replace insurance coverage students may already have. Students should review their own coverage. The master insurance policy issued to Ivy Tech is on file at the central administrative office. The description of the hazards insured, benefits and exclusions is controlled by the master policy. Students with questions may contact the regional Office of Student Affairs.

Student Health Insurance

The College has made arrangements for Ivy Tech students to obtain health insurance. Insurance coverage is purchased directly from the insurance company by the student. Application forms and brochures explaining coverage and rates are available through the Office of Student Affairs during registration periods. Coversages and rates are subject to change.

Accidents and Illnesses

If a student has an accident on College property the student should report the accident to campus security or the Office of Student Affairs. If a student suffers an accident or illness while attending classes the student should notify the instructor. The College will take the necessary steps to inter-vene in a medical emergency while the student is on campus. If paramedic services or hospitalization is required the student is financially responsible. If a student is suffering from an illness that makes it impossible to attend classes the student should contact his/her instructors.

The College does not provide a health services center. The College supports the Drug Free Schools and Communities Act of 1989. Many community agencies are available to assist students seeking counseling or treatment. Please contact the Office of Student Affairs for a listing of community resources. The College conducts a biennial review of the effectiveness of its drug and alcohol abuse prevention programs. This review is available in the Office of Student Affairs.

Voter Registration

Students are strongly encouraged to exercise their right to vote. In order to vote in national, state, or local elections one must be a registered voter at the person’s current address. Students who need a voter registration form due to either not having previously registered or having moved can pick up a voter registration form at the Office of Student Affairs. Forms can also be downloaded from the Indiana Secretary of State’s office at www.in.gov/sos/forms/index.html. Under the “Elections” section, select form VRG-7i. A Spanish-language version is also available.

Emergency Closings of Campuses

Severe weather conditions or other emergencies occasionally make it necessary to close a campus. Each campus has designated local radio stations to announce information on closings.

Student Rights and Responsibilities

STUDENT CONDUCT

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

The reputation of the College and the community depends in large part upon the behavior of its students. Students enrolled at the College are expected to conduct themselves in a mature, dignified, and honorable manner. Students are entitled to a learning atmosphere free from discrimination, harassment, sexual harassment, and intimidation. This applies to the conduct between faculty and staff to students, student to student, and students to faculty and staff.

Students are subject to College jurisdiction while enrolled at the College. The College reserves the right to take disciplinary action against any student whose conduct, in the opinion of College representatives, is not in the best interests of the student, other students, or the College. Students who are disciplined should expect to find their sanctions enforced at other Ivy Tech campuses. All students are expected to abide by the following College rules of conduct. “Student” as used refers to a student, a group of students, a prospective student or a group of prospective students.

COLLEGE RULES

1. Academic Integrity

   Faculty are responsible for maintaining the academic integrity of the institution. Academic integrity is expected of all students and faculty.
Ivy Tech recognizes academic integrity as a fundamental principle of collegial life. The credibility of the College's educational programs rests upon the foundation of student learning and integrity. Students who misrepresent their academic work violate the rights of their fellow students and undermine the faculty's authority and their ability to assess learning. The College therefore views any act of academic dishonesty as a serious offense requiring disciplinary measures, including failure for the exam or specific course work, course failure, suspension, and expulsion from the College. In addition, an act of academic dishonesty may have unforeseen effects and lead to formal processes outside the College.

Definitions: Violations of academic integrity include, but are not limited to, the following acts:

Cheating: Unauthorized use of notes or study aids; acquiring information from another student's papers, on an examination; or obtaining a copy of an examination or questions from an exam prior to taking the exam; or altering graded work with the intent to deceive by resubmitting it for re-evaluation; or altering or destroying grade records; or allowing another person to do one's work and then submitting as one's own name; or allowing another to take an examination in one's name; or submitting identical or similar papers for credit in more than one course without obtaining prior permission from the instructors of all the courses involved.

Aiding Cheating or Other Acts of Academic Dishonesty: Providing material or information to another student with the knowledge that this material or information will be used to deceive faculty in an effort to acquire higher grades.

Plagiarism: Presenting within one's own work the ideas, representations, or words of another person without customary and proper acknowledgment of that person's authorship is considered plagiarism. Students who are unsure of what constitutes plagiarism should consult with their instructors. Claims of ignorance will not necessarily excuse the offense.

Data Misrepresentation: Fabricating data; deliberately presenting in an assignment data that were not gathered in accordance with assigned guidelines or are deliberately fabricated; or providing an inaccurate account of the method by which the data were gathered or generated.

Falsification of Academic Records or Documents: Falsification of academic records or documents includes but is not limited to altering any documents affecting academic records; forging signatures; or falsifying information of an official academic document such as a grade report, ID card, library card, or any other official College letter or communication which will constitute academic dishonesty.

Unauthorized Access to Computerized Academic or Administrative Records or Systems: Unauthorized access to computerized academic or administrative records or systems means viewing or altering the College's computer records without authorization; copying or modifying the College's computer programs or systems without authorization; releasing or dispensing information gained through unauthorized access; or interfering with the use or availability of computer systems or information. Also, when college-sponsored activities are held at locations owned or managed by other institutions or organizations, the unauthorized use, viewing, copying, or altering of those institutions' computer records, systems, or program would similarly constitute a violation of academic integrity.

2. Assembly: College policy states that assembly in a manner that obstructs the free movement of others about the campus, inhibits the free and normal use of the College buildings and facilities, or prevents or obstructs the normal operation of the College is not permitted. Obstruction of the free flow of pedestrian or vehicular traffic on College premises or at College-sponsored or supervised activities is included in the definition of obstruction.

3. Children on Campus: Due to insurance and security purposes, children are not allowed to be on Ivy Tech property without direct supervision by parent or guardian, with the exception of childcare centers. Children are not allowed in classrooms unless through the expressed consent of the instructor.

4. Commitment of College Funding: Committing College funding, including student clubs or organizations, without written approval and paperwork will result in the student being responsible for the money owed, the student being removed from the club or organization, and disciplinary action being evoked. No student shall enter into a contract with an outside agency using the name of the College. Contracts entered into in violation of this rule shall be the personal responsibility of the student.

5. Compliance and Identification: Students who fail to comply with direction of College officials or law enforcement officers in the performance of their duties and/or fail to identify themselves to these persons when requested to do so are subject to disciplinary sanctions.

6. Discrimination Activities: Any student involved in discrimination activities towards students or staff will face disciplinary action.

7. Disruptive Behavior: Behaviors or actions that disrupt the College's processes (academic and/or non-academic) are in violation of College rules. No student shall behave in a manner that is unacceptable in a learning environment or that endangers or infringes on the rights and/or safety of himself or herself or other students, visitors, staff, patients in a clinical situation, and/or children in childcare centers. If misconduct warrants an immediate suspension from the institutional setting for the remainder of the instructional period, the instructor may do so without a prior hearing. If the student does not voluntarily leave the institutional setting campus officials and/or campus security officers may remove the student from that setting upon oral request by the instructor.

8. Electronic Equipment or Programs: Use of electronic equipment or programs in a manner that is disruptive to other students, staff, or College processes is prohibited. This includes electronic equipment being played loudly. Students introducing computer viruses will be subject to disciplinary action, including dismissal.

9. Financial Responsibility: Students are expected to pay all fees, fines, or loans in a timely manner. Official transcripts and copies of records will not be given to the student and degrees will not be awarded until debts to the College are paid. Students will be allowed to inspect and view transcripts and records. Students will be allowed to register in an "owe fees" status.

10. Fundraising or Solicitation: College policy requires that individuals or organizations seeking the use of campus facilities or scheduling activities to solicit funds must first obtain written approval from the appropriate College official. College rules and regulations govern fundraising activities, the money collected, and the use of the money collected by the
fundraising activities. Misrepresentation or misuse will result in the student's being responsible for the money owed to an institution or individual, the student's being removed from the club or organization, and the student's facing disciplinary action. The student is also accountable to state and federal laws and regulations.

11. **Furnishing False Information With Intent to Deceive**: Providing false information is against College rules and state laws.

12. **Harassment/Sexual Harassment/Stalking and/or Intimidation**: This is defined as conduct causing alarm or creating a risk by threatening to commit crimes against persons or their property or making unwelcome sexual advances or requests for sexual favors. This also covers harassment or intimidation of persons involved in a disciplinary hearing and of persons in authority who are in the process of discharging their responsibilities. Harassment, stalking, and/or intimidation are not permitted. Perpetrators are also subject to Indiana state law. Please see the policy regarding harassment at the end of this section.

13. **Hazing**: Hazing, an initiation process usually into a club or organization which often involves humiliating or otherwise harmful tasks, performances, or behaviors is not permitted.

14. **Inappropriate Use of College Computer Resources**: Theft or other abuse of computer time is against College rules, which include but are not limited to:
   a) unauthorized entry into a file, to use, read, or change the contents or for an other purpose.
   b) unauthorized transfer of a file, unauthorized use of another user's identification and password or use of computing facilities to interfere with the work of another student, faculty member or college official.
   c) use of computing facilities to send, receive, or view obscene or abusive messages.
   d) use of computing facilities to interfere with normal operation of the College computing system.
   e) use of computing facilities for students' personal benefit.
   f) use of College-owned computer resources to prepare or print work for commercial purposes.
   g) Inappropriate use of printers:
      1. Printers are intended for class-related activities. Printing Internet web pages or other information not directly related to an authorized use is prohibited.
      2. Excessive printing is prohibited. Students must follow lab guidelines limiting the number of copies or pages that may be printed.
      3. Using non-approved paper in a college-owned printer is prohibited.

15. **Motor Vehicles**: Students are expected to comply with parking regulations. Parking spaces for persons with disabilities and visitors' areas are reserved for those purposes, and vehicles improperly parked in those areas may be ticketed or towed at the owner's expense.

16. **Safety**: No student shall engage in behavior that violates the safety rules of any institutional setting or other College premises, and/or College sponsored events whether such procedures are written or oral rules or directions. This shall include, but not be limited to, the wearing of any required personal protective equipment and the prescribed methods and procedures for handling and disposing of certain materials that may be hazardous, unstable, infectious, etc.

17. **Signs or Surveys**: Students may erect signs, conduct surveys, or display signs or posters on designated bulletin boards.

18. **Use of College Name**: The College name and logo are registered trademarks. The use of the College name or logo must be authorized by the officials in charge of College trademarks. Use without authorization is against College rules.

19. **Use of College Facilities**: Students are permitted on campus during normal published Ivy Tech hours and at other times established in the College calendar. Students wishing to utilize College facilities at other times must request permission from the appropriate College official. Unauthorized possession, duplication, or use of keys or electronic locking devices to any College premise, or unauthorized entry to or use of College premises is against College rules.

20. **Compliance with Indiana State Laws**: Violation of these laws is also against College rules and violators may also be prosecuted according to Indiana law.
   - **Alcoholic beverages**: Consuming, being under the influence of or possessing intoxicating beverages on College property is not permitted.
   - **Arms/deadly weapons/explosives/chemicals**: Possession of firearms (except those possessed by police or campus security officers) and other weapons, dangerous chemicals, or any explosive or explosive device is prohibited on College property or at any College sponsored activity held elsewhere. No student shall use or threaten to use firearms, other weapons, dangerous chemicals, or any explosive or explosive device on College property or at any College-sponsored activity held elsewhere. A harmless instrument designed to look like a firearm, explosive, or weapon that is used by a person to cause fear in or assault of another person is included within the meaning of a firearm, explosive, or weapon.
   - **Assault and battery, abusive actions, physical and/or verbal altercations and/or threatening language**: Assault and battery, abusive actions, physical and/or verbal altercations, and/or threatening language are prohibited under College rules. Perpetrators are also subject to Indiana State law. No student shall threaten or commit any physical or sexual attack on faculty, staff, or another student. No student shall force or threaten to force another student, faculty, or staff member to have sexual contact against that person's will. Any student charged with an assault on Ivy Tech property or at any College sponsored activity is subject to prosecution and will be disciplined under the campus code of student conduct.
   - **Counterfeiting and altering**: Copying or altering in any manner any record, document, or identification form used or maintained by the College is not permitted.
   - **Dumping and littering**: No student shall deposit, dump, litter or otherwise dispose of any refuse on college property except in duly designated refuse depositories.
   - **Gambling**: Gambling is not allowed except where permitted by state law or within a sanctioned program or class.
   - **Illegal use of drugs**: Being under the influence of, use of, possession of, or distributing illegal drugs is not permitted.
- Smoking: All Ivy Tech buildings are classified as “non-smoking” facilities. Smoking is permitted only in designated areas.
- Theft of property: Theft of personal property, College property, or property located on College property is a violation of College rules.
- Vandalism: The destruction or mutilation of Ivy Tech books, magazines, equipment, resources, or buildings is a violation of College rules.

REPEATED OFFENSES OF A LESS SERIOUS NATURE
Repeated offenses of a less serious nature are considered disruptive and will be handled under the College’s disciplinary process.

Policy and Complaint Procedure Against Harassment

The College will not tolerate harassment based on gender (with or without sexual conduct), sexual orientation, race, color, religion, national origin, age, disability, and/or opposition to prohibited discrimination or participation in this or any other complaint procedure. This prohibition covers harassment against any student at an Ivy Tech campus by anyone, including other students, employees, or non-employees during any College activity or program. The policy prohibiting harassment includes adverse treatment of students because they report harassment or provide information related to such complaints.

Sexual harassment is simply one form of harassment covered by this policy. Sexual harassment encompasses unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature where:

Submission to the conduct is an explicit or implicit term of student status (which includes academic and non-academic decisions).

Submission or rejection of the conduct is the basis for any decision affecting that individual’s student status; or such conduct has the purpose or effect of unreasonably interfering with an individual's academic performance or creates an intimidating, hostile or offensive academic environment.

Sexual harassment would include, but not be limited to, actions such as:
1. sex-oriented oral or written “kidding” or abuse,
2. photographs, drawings or graffiti of a sexual nature,
3. subtle pressure for sexual activity,
4. physical conduct such as patting, pinching, or constant brushing against another’s body, and
5. explicit demands for sexual favors, whether or not accompanied by implied or overt promises of preferential treatment or threats concerning an individual’s student status.

REPORTING AND COMPLAINT PROCEDURE
Students are encouraged to report harassment before it becomes severe or pervasive. A student who thinks that he or she has been a victim of harassment and who desires to file a complaint to that effect should report a complaint as follows:

If the complaint is regarding harassment by another student it may be filed with or reported to the Vice Chancellor for Student Affairs or an academic chairperson with the expectation that the harassing behavior will be a violation of the College’s Code of Student Conduct, either on its own terms or as a violation of another College policy.

If the complaint is regarding harassment by a College employee or non-employee it may be filed with or reported to the Vice Chancellor for Student Affairs, any of the employee’s supervisors, the Director of Human Resources, or anyone else in a managerial role. All supervisors and members of management to whom a complaint of harassment is brought or who independently observe behavior prohibited by the harassment policy are to report the complaint of harassment or information about harassment promptly to the highest ranking official at the respective facility who is not the alleged harasser, to the Vice Chancellor for Student Affairs or to the Director of Human Resources.

INVESTIGATION
Students filing complaints of harassment are assured that information about the allegation of harassment will be shared only with those who need to know about it. Records relating to harassment complaints will be kept confidential on the same basis. Complete confidentiality cannot be guaranteed since conducting an effective investigation would not be possible without revealing certain information to the alleged harasser and potential witnesses. Under no circumstances will the individual who conducts the investigation or who has any direct or indirect control over the investigation be subject to the supervisory authority of the alleged harasser.

DETERMINATION
After all of the evidence is in, interviews are final, and any credibility issues are resolved, a determination as to whether harassment occurred will be made and the parties informed of the determination. If no determination can be made because the evidence is inconclusive the parties will be informed of this result.

CORRECTIVE ACTION
After the determination is made the College will undertake prompt and appropriate corrective action including discipline up to and including termination of employment of an employee harasser or dismissal of a student harasser, whenever it determines that harassment has occurred in violation of this policy. Such corrective action will be reported to the student making the complaint.

VIOLATIONS
The College strives to provide an educational and professional environment that allows individuals to engage in their daily activities in a safe, healthy, and secure manner. Local, state or federal law enforcement officials will be notified of anyone violating local, state, or federal laws. Violators shall be subject to prosecution by the appropriate law enforcement officials. Anyone found in violation of College regulations shall be subject to disciplinary action by the College through the due process procedures for student conduct violations. The regulations and procedures will be placed for reading and review in the library. Copies will also be available through the Office of Student Affairs.

Disciplinary Action
Cases of student misconduct and/or lack of academic integrity are to be referred to the chief academic officer or chief student affairs officer. A student who violates the rules and regulations of
the College may be subject to disciplinary actions, which may include, but not be limited to, the following:

1. Verbal reprimand;
2. Restitution for damages;
3. Restriction of privileges such as access to lab facilities, library facilities, testing center, etc.;
4. Failure of the exam, quiz, project, etc.
5. Failure of the assignment or course;
6. Withdrawal from a course, program or the College for the remainder of the semester or term;
7. Suspension from the College;
8. Dismissal from the College.

In addition, the College representative will be responsible to review all initial disciplinary procedures and may suspend a student for a period of time until the Student Status Committee can meet.

Students are provided an opportunity to appeal any disciplinary decision and are required to sign a waiver if they choose to waive the right to appeal. The basic process in disciplinary cases is as follows: notice of charges, notice of possible penalty, and opportunity to explain a defense to some authority.

1. An appropriate College official shall notify the student that he or she is accused of violating a regulation.
2. The student shall be notified in writing that he or she may elect one of three courses of action:
   A. The student may admit the alleged violation and agree with the recommended disciplinary action. A signed waiver which waives the right to appeal is required.
   B. The student may admit the alleged violation and request a hearing before the Student Status Committee.
   C. The student may deny the alleged violation, in which case the administrative officer shall refer him/her to the Student Status Committee.

The Student Status Committee hears all appeals relating to disciplinary actions.

STUDENT GRIEVANCE POLICY
The student grievance process provides the College an appropriate mechanism to deal with violations of student rules of conduct and conversely allows a student with a disagreement to grieve against a College employee's decision affecting that student. The College encourages students to resolve their complaints informally. The informal grievance procedures are designed to accomplish a quick resolution that is most expeditious and effective.

Whenever the informal process does not result in a satisfactory resolution, the College formal grievance procedure is also available.

INFORMAL GRIEVANCE PROCEDURE
The student shall initiate the informal process with the student working one-on-one with appropriate faculty or staff and must be started within 30 calendar days of the incident. Students must bring to the attention of their instructor (in cases involving academic coursework) or relevant supervisory staff member legitimate complaints perceived by them. The student should first bring the complaint to the attention of his/her instructor or the person with whom the student has a complaint. A conference with the student will be scheduled as soon as possible and within five working days (Monday - Friday) of notice of the student complaint, at the latest. The intent of these conferences is to ensure an early discussion of the issue, that the issue has been raised in a timely fashion and that if possible a mutually acceptable resolution can be reached.

A student who feels that the conference would be futile because of that person's involvement in or the situation/concern cannot be resolved with the instructor or staff with whom the student has the complaint, he or she should bring the grievance in writing to the supervisor of that area or department. The conference will be held as soon as possible and at least within five working days of notice of the complaint. Such conferences are to be conducted in proper sequence of supervisors. If the grievance is not resolved with an instructor the student may elect to request a conference with a department head, division chair or the chief academic officer, as deemed appropriate. Non-instructional areas follow the same step process. Through Student Affairs, for example, the process would be advisors/counselors, then manager, and finally the chief student affairs officer. Grievances may cover matters such as the application of College policies and practices to the grievant but the existence or content of the policies may not be grieved.

FORMAL GRIEVANCE PROCEDURE
If a student is not satisfied with the results of the informal process the student may proceed with the formal grievance as described below.

FORMAT OF THE WRITTEN GRIEVANCE
If the complaint is not resolved to the student's satisfaction through the informal procedure the student shall put the grievance to writing. The formal complaint must:

1. Clearly state the facts giving rise to the grievance.
2. Describe the efforts to informally resolve the complaint.
3. State the remedy sought by the grievant.
4. Be signed and dated.

TIMELY FILING OF A FORMAL GRIEVANCE
Students must file complaints within a reasonable period of time, not to exceed 30 calendar days, after the informal grievance process has been exhausted. Students must file a grievance within 30 days of the end of the term in which the incident occurred.

FILING THE FORMAL GRIEVANCE
Original copies of the formal written grievance document shall be filed with both the regional office of Student Affairs and the College's Vice Provost for Student Affairs (50 W. Fall Creek Parkway N. Dr., Indianapolis, Indiana 46208). The Vice Provost shall assign a College Grievance Coordinator who shall coordinate the handling of the grievance within the region.

MEDIATION
Reasonable efforts should be made by the Grievance Coordinator to mediate a mutually agreeable resolution of the matter with the parties. A signed document should be generated by the Grievance Coordinator stating the results of the mediation.
STUDENT STATUS COMMITTEE

The Student Status Committee is a committee whose purpose is to review all formal grievances referred to it and recommend a resolution to the chief administrative officer. It will be composed of six members, including two full-time instructional staff members and two administrative staff persons appointed by the chief administrative officer of the region. The additional two members will be students designated by the Student Government Association or the chief student affairs officer. The Committee's review of a formal appeal will begin no later than 30 days after fact-finding and mediation terminates. The Grievance Coordinator shall keep the grievance body informed of efforts related to fact-finding and mediation. Office of the Provost support, as needed, will be available to the Grievance Coordinator.

Disposition of Formal Grievance by the
Student Status Committee

If mediation does not resolve the grievance the Student Status Committee shall, in all cases, conduct a hearing. Unless there is a mutual resolution of the grievance the grievance shall not be dismissed prior to the hearing. Written notice of the procedures, actions and meetings at all stages of the formal complaint procedure, including the role of advisors to each party, will be provided to both the student (grievant) and respondent.

The Student Status Committee will ensure the student due process. The student has the following rights:

1. Reasonable advance written notification of the time and place of the hearing;
2. Notification in writing of the charges with sufficient particularity to enable the student to prepare a defense;
3. Notification in writing of the names of the witness(es) directly responsible for reporting the alleged violation or, if there are no such witness(es), written notification of how the alleged violation was reported;
4. Notice of actions and meetings at all stages of this appeal procedure;
5. An opportunity to be heard;
6. An opportunity to question witnesses at hearings;
7. An opportunity to have a representative present when presenting facts, being questioned, or asking questions;
8. An expeditious hearing of the case;
9. An explanation of the decision rendered in the case.

The student shall not be required to testify against him or herself.

Once the formal grievance has been initiated and attempts by the Grievance Coordinator to mediate a settlement have been exhausted a hearing shall be held pursuant to the hearing guidelines entitled "Student Grievance Hearing Procedural Guidelines." These guidelines, which are occasionally updated, describe how the actual hearing will be conducted. The Grievance Coordinator will provide a copy to both the student (grievant) and respondent at the beginning of the formal process. Persons who desire to view the guidelines should contact the chief student affairs officer for a copy.

The Student Status Committee will issue a recommendation(s) to the chief administrative officer following its deliberation. Recommendations of the Student Status Committee if approved by the chief administrative officer are final, unless appealed to the Office of the President (see Appeal to the Office of the President). The student will be informed in writing of the chief administrative officer's decision. A copy of the letter with the chief administrative officer's decision will be filed in the student's permanent record.

APPEAL TO THE OFFICE OF THE PRESIDENT

If the student does not accept the decision of the Student Status Committee the student may appeal, in writing, within 30 calendar days from the written notification by sending a written notice to the General Counsel, Collegewide Appeals Grievance Body, at 50 W. Fall Creek Parkway N. Dr., Indianapolis, IN 46208.

An appeal of the decision of the Student Status Committee to the Collegewide Appeals Grievance Body is limited to procedural errors. The Collegewide Appeals Grievance Body does not review or re-hear the merits of the original grievance. The Collegewide Appeals Grievance Body can recommend to the President that the decision should stand or to remand it back to the campus chief administrative officer for reconsideration. The decision of the President is final.

REINSTATEMENT TO THE COLLEGE

If a student is dismissed from any campus/region of Ivy Tech, that individual is dismissed from the College. The year starts at the time/date of official notification to the student by the Chancellor/Executive Dean. After one calendar year the individual under suspension may apply for reinstatement. If the student is dismissed the student may appeal for reinstatement after five years. The individual must begin the reinstatement appeal process by informing the Vice Chancellor for Student Affairs at the campus where the dismissal took place of his/her intentions. The appeal for reinstatement may be applied for at any campus/region of Ivy Tech where the individual hopes to attend. The appeal will be reviewed by the Vice Chancellor for Academic Affairs and the Vice Chancellor for Student Affairs. If there is reinstatement that is agreed to by the student, no further action is necessary. If the student is not satisfied with the reinstatement decision, the formal due process procedure is implemented. The campus/region Student Status Committee will act on the appeal within 30 days of its receipt. The recommendation of the Student Status Committee will be forwarded to the Chancellor/Executive Dean of the campus/region. That individual will render a judgment on the appeal. That judgment will be final.

STUDENT APPEAL OF A GRADE

When a student believes the final grade he or she received in a course is inaccurate, he or she should make an appointment with the instructor who issued the grade or status and explain the reasons for this belief. This process must be initiated within 30 calendar days of receiving the grade. The instructor and the student should make every effort to resolve the issue. It is expected that most if not all misunderstandings will be resolved at this level.

If the grade or status issue is not resolved the student can appeal in writing to the instructor's supervisor. This individual may be the department chairperson or program chairperson. Once the student has appealed the grade or status with the chairperson, if the issue is not resolved to the student's satisfaction the student may appeal to the department chairperson, next higher chairperson, or whomever is next in line.

The student's next recourse is to appeal to the regional chief academic officer. The student must
notify the dean of academic affairs in writing of his or her intent to appeal the grade. An appeals committee will be formed by the academic dean, consisting of a faculty member from the program or from the division in which the program is housed, a faculty member from another division, the regional student affairs dean or designee, the regional academic affairs dean, and an optional fifth regional person, possibly staff. The appeals committee's decision will be forwarded to the student. Students not satisfied with the committee's decision may make a final appeal to the regional chancellor.

STUDENT RIGHT TO KNOW
The 1990 federal Student Right to Know Act requires colleges and universities to report to prospective and current students the persistence and graduation rates of full-time technical certificate and degree-seeking students. The graduation rate is based upon program completion within 150 percent of time usually required for a full-time student. For technical certificate students, this is the number of full-time students graduating in three semesters. For associate degree students, this is the number of students graduating in six semesters. Contact the Office of Student Affairs for further information.

Campus Security Information

JEANNE CLERY ACT (CAMPUS CRIME STATISTICS) INFORMATION
The Crime Awareness and Campus Security Act of 1990 (also known as the Jeanne Clery Act) requires colleges and universities to disclose an annual report highlighting crime statistics for the previous three years, safety awareness programming, student conduct information, and other information on campus crime and incidents. Ivy Tech Community College of Indiana is committed to provide safe and secure environment for the campus community. Please contact the Office of Student Affairs for a copy of the annual report.

CAMPUS SEX CRIME PREVENTION ACT
The federal Campus Sex Crimes Prevention Act requires state procedures to ensure that offender registration information is made available in a timely manner to law enforcement agencies with jurisdiction where institutions of higher education are located, and that it is entered into appropriate state records and data systems. Law enforcement agency information provided by the State concerning registered sex offenders may be found at the Indiana Criminal Justice Institute website located at http://www.in.gov/cJI/ or the Indiana Sheriff's Association website located at www.indianasheriffs.org/default.asp.

Instructional Programs
The College's degree programs are offered in eight schools:

- School of Applied Science and Engineering Technology
- School of Business
- School of Education
- School of Fine Arts and Design
- School of Health Sciences
- School of Liberal Arts and Sciences
- School of Public and Social Services
- School of Technology

The College offers the following degrees and certificates:

ASSOCIATE OF ARTS (AA) DEGREE PROGRAMS
The associate of arts degree program prepares students for transfer to four-year institutions. General education and liberal arts courses make up all or almost all of the curriculum, and students are required to take a minimum of eight credit hours in a foreign language. Concentrations are available in six areas. The coursework provides students with a foundation for transfer to a related baccalaureate program at a four-year institution.

Students interested in the Associate of Arts program should contact their local Ivy Tech campus and institution to which they want to transfer for further information.

ASSOCIATE OF SCIENCE (AS) DEGREE PROGRAMS
The College offers two types of AS programs: AS programs in technical and professional areas and AS programs in the liberal arts.

AS degree programs in technical and professional areas prepare students for transfer to cooperating four-year institutions and for careers. Technical/professional AS programs typically contain 40 percent or more general education, with the balance in technical and professional courses. The coursework provides students with a foundation for transfer to a related baccalaureate program at a four-year institution, and equips students with skills for the job market. AS curricula in technical/professional areas are tailored to meet specific institutional transfer objectives.

The AS degree program in the liberal arts prepares students for transfer to four-year institutions. General education and liberal arts courses make up all or almost all of the curriculum. Concentrations are available in four areas. The coursework provides students with a foundation for transfer to a related baccalaureate program at a four-year institution.

Students interested in Associate of Science programs should contact their local Ivy Tech campus and institution to which they want to transfer for further information.

ASSOCIATE OF APPLIED SCIENCE (AAS) DEGREE PROGRAMS
Associate of applied science degree programs are two-year programs that prepare students for careers, career changes and career advancement. AAS programs may also prepare students for transfer to four-year institutions. These programs offer education in recognized technical areas and specialties with emphasis on analysis, synthesis and evaluation. The program content, which is approximately 30 percent general education, provides depth and breadth in conceptual and professional/technical skills. The general education courses equip students with the problem solving, communications, scientific and mathematical skills to compete successfully in the job market. Professional/technical courses equip students with the skills to obtain employment and to advance in the workforce.

ASSOCIATE OF FINE ARTS (AFA) DEGREE PROGRAMS
The associate of fine arts degree program prepares students for transfer to cooperating four-year institutions and for becoming professionals in the field of art. General education coursework makes up approximately 40 percent of the curriculum, including six hours of art history. The balance of the curriculum includes arts foundation, studio art, graphic and design work, and elective coursework. The coursework provides students with a foundation for transfer to a related baccalaureate arts program at a four-year institution. Students interested in the Associate of Fine Art degree should contact their local Ivy Tech campus for availability of programs and for further information.
TECHNICAL CERTIFICATE (TC) PROGRAMS
Technical Certificate programs provide education in conceptual and technical skills for specific occupations. Each program contains a sequence of required courses in a recognized concentration within one of the programs at the College. The program content is designed to develop competency in the comprehension of general and technical skills. Certificate programs require mastery of basic reading, writing, mathematical and algebraic skills.

CERTIFICATE PROGRAMS
Certificates are sequences of technical and professional courses. They provide access to targeted, short-term workforce training, and completers may sit for specific certification exams. Courses in certificate programs also apply toward technical certificates and associate degree programs in the subject area. Certificates have between 16 and 27 credit hours, with a consistent statewide curriculum, and are currently offered in business and technology fields.

DISTANCE LEARNING
Distance Education
At Ivy Tech, you can complete several degree programs via distance education. Our online programs and courses make it even easier for you to take classes that fit your schedule, while still enjoying interaction with your classmates and learning from the same qualified instructors who teach classes on campus. For more information about the College’s online offerings, visit www.ivytech.edu/distance.

In addition, the Indiana Partnership for Statewide Education (IPSE) is a collaboration of Indiana’s colleges and universities committed to delivering higher education courses via distance education to learners all over Indiana through the Indiana college network. Most IPSE courses are online, though some are delivered via two-way video or some other medium. Most courses offered through IPSE are transferable among all seven of Indiana’s public colleges and universities as well as several of the private institutions.

Contact your local campus, www.ivytech.edu, or the Indiana College Network website at www.icn.org for more information.

Apprenticeship Programs
Ivy Tech is a partner with Industrial and Building Trades Apprenticeship programs in Indiana to provide certificates and associate degree programs to Indiana companies and employees. The College and the local joint apprenticeship training committees (JATC) come together and offer educational programs. Individuals who have been selected by the JATC become Ivy Tech students and have the opportunity to earn college credit while advancing through a registered apprenticeship program. Because Ivy Tech has adopted the national standards of the Industrial and Building Trades apprenticeship programs, the apprentice has an opportunity to earn a Technical Certificate (TC), Associate of Applied Science (AAS), or Associate of Science (AS) degree. Students should contact the Apprenticeship Manager at the local Ivy Tech campus for more information.

Those apprentices or journeypersons who wish to explore transfer opportunities after earning an AAS or AS degree can contact Indiana State University, Indiana University-Labor Studies, the National Labor College, or Sullivan University. Interested apprentices and journeypersons should consult the current catalog of the institution in which they are interested, and should review their options with an academic advisor. Additional course and transfer prospects may be available.

Senior Scholars
In the spring of 2001, Ivy Tech launched the Senior Scholars program. Indiana citizens 60 years of age and older can take credit courses at Ivy Tech tuition-free. Students are responsible for books and any associated fees. In order to qualify for this program a person must meet the following requirements:

• Be an Indiana resident;
• Be 60 years of age or older at the start of a semester;
• Possess a high school diploma or GED;
• Be retired from their primary vocation (does not apply to homemakers); and
• Not be employed on a full-time basis.

Non-credit courses are not included in the Senior Scholars program. Please contact the Office of Admissions for further information.

College for Working Adults
When you’re balancing a job, family and other commitments, a college degree might seem out of reach. As a working adult, you need a solution that fits your schedule, your career goals, and your budget. What you need is more than just a college — you need a college designed especially for you. Ivy Tech’s College for Working Adults combines innovations in scheduling and instruction to ensure that you earn your associate degree in just two years while you continue to work. The program offers: a defined program plan, 8-week sessions, two classes per session, a set schedule, career-relevant courses, and the support you need along the way. Visit www.ivytech.edu for more information.