2014-2015 College Catalog

www.wvutech.edu

This West Virginia University Institute of Technology (WVU Tech) 2014-2015 College Catalog is intended as a general reference on degree programs and their requirements, course offerings, admission, graduation requirements, and other academic rules and regulations of the institution. Because the operations of this institution are subject to continuing review and change by the West Virginia Higher Education Policy Commission, the WVU Board of Governors, the WVU Tech Board of Visitors, institutional administrators, and members of the faculty, WVU Tech reserves the right to change, delete, supplement, or otherwise amend the contents of this catalog as necessary without prior notice.

West Virginia University Institute of Technology
Calendar 2014-2015

Fall 2014

Thursday, August 14 ..... New Student Orientation
Friday, August 15 ..... General Registration
Monday, August 18 ..... On Campus First Day of Classes
Monday, August 18 ..... Late Registration Fee in Effect for All Students
Friday, August 22 ..... Last Day to Register, Add Courses, Make Section Changes, Change Pass/Fail and Audit
Monday, September 1 ..... Labor Day Recess: University Closed
Thursday, September 25 ..... Rosh Hashanah (Day of Special Concern)
Friday, October 3 ..... Mid-Semester
Saturday, October 4 ..... Yom Kippur (Day of Special Concern)
Friday, October 10 by noon ..... Mid-Semester Reports Due
Monday, October 13 thru Tuesday, October 14 ..... Fall Break Recess
Wednesday, October 15 ..... Textbook Selection Deadline (Spring 2015)
Friday, October 24 ..... Last Day to Drop a Class
Tuesday, November 4 ..... General Election Day: University Closed
Tuesday, November 11 ..... Veterans Day (Day of Special Concern)
Wednesday, November12 ..... Birth of Baha'u'llah (Day of Special Concern)
Saturday, November 22 thru Sunday, November 30 ..... Fall Recess
Monday, December 8 ..... Last Day to Withdraw from the University
Tuesday, December 9 ..... Last Day of Classes
Wednesday, December 10 ..... Prep Day for Finals
Thursday, December 11 thru Wednesday, December 17 ..... Final Exam Week
Thursday, December 18 ..... Winter Recess Begins

LATE REGISTRATION FEE IN EFFECT ON THE SECOND DAY OF CLASS FOR ALL CLASSES

Spring 2015 Semester

Thursday, January 8 ..... New Student Orientation
Friday, January 9 ..... General Registration
Monday, January 12 ..... On Campus First Day of Classes
Monday, January 12 ..... Late Registration Fee in Effect for All Students
Friday, January 16 ..... Last Day to Register, Add New Courses, Make Section Changes, Change Pass/Fail and Audit
Monday, January 19 ..... Martin Luther King's Birthday Recess: University Closed
Thursday, February 19 ..... Chinese New Year (Day of Special Concern)
Friday, February 27 ..... Mid-Semester
Friday, March 6 by noon ..... Mid-Semester Reports Due
Monday, March 16 ..... Textbook Selection Deadline (Summer and Fall 2015)
Friday, March 20 ..... Last Day to Drop a Class
Saturday, March 21 thru Sunday, March 29 ..... Spring Recess
Saturday, March 21 ..... Naw-Ruz (Day of Special Concern)
Friday, April 3 ..... Friday Before Easter Recess: University closed
Saturday, April 4 ..... Passover (Day of Special Concern)
Tuesday, April 21 ..... Feast of Ridvan (Day of Special Concern)
Thursday, April 30 ..... Last Day to Withdraw from the University

Friday, May 1..... Last Day of Classes
Monday, May 4 thru Saturday, May 9.....Final Examination Week
Saturday, May 9 .....Commencement

Summer 2015 Session

Monday, May 18.....Registration
Monday, May 18..... On-Campus First Day of Classes
Monday, May 25..... Memorial Day Recess: University Closed
Friday, June 26 ..... Final Exam for First Six-Week Session
Friday, July 3..... Independence Day Recess: University Closed
Friday, August 7.....Final Exam for Second Six-Week Session and 12-Week Session

LATE REGISTRATION FEE IN EFFECT ON THE SECOND DAY OF CLASSES FOR ALL CLASSES.

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Governance

Effective July 1, 2001, the West Virginia University Board of Governors is vested by law with the authority for the control and management of the University. The board includes thirteen lay members, two faculty members, and one student member. The University president, appointed by the Board of Governors, is the chief executive officer of the University. The Campus Executive Officer is the chief executive officer for WVU Tech as a divisional campus of the University.

The West Virginia Higher Education Policy Commission is responsible for policy development and other statewide issues. The commission consists of seven members appointed by the governor, the secretary of education and the arts, and the state superintendent of schools.

The Faculty Senate is the vehicle for faculty participation in the governance of the University. It is a legislative body with original jurisdiction over all matters of academic interest and educational policy that concern the entire University or affect more than one college or school. The senate's decisions are subject to review and approval by the president and the Board of Governors. Senators are elected by members of the University faculty to represent their colleges and other constituencies. Each senator represents twenty members of the University faculty. The senate is presided over by an elected chair.

On the WVU Tech campus, the faculty are represented by the Faculty Assembly. This body is made up of all full-time faculty, including visiting appointments, as well as those with FEAP appointments. The Faculty Assembly is presided over by an elected chair.

The Staff Council is an advisory council to the campus executive officer, and provides a means for all classified employees to express their opinions about job conditions, fringe benefits, employee relations, or other areas that affect their jobs.

Students are represented by the Student Government Association, which is made of executive officers and representatives elected by the student body. Members of the SGA serve on various campus committees.

Frequently Contacted Offices

Academics: College of Business, Humanities, & Social Sciences 227 COBE bhss.wvutech.edu	Phone: 304.442.3105	Fax: 304.442.3488
Academics: Department of Nursing 2400 Orndorff nursing.wvutech.edu	Phone: 304.442.3346	Fax: 304.442.3479
Academics: Leonard C. Nelson College of Engineering & Sciences Engineering Building engineering.wvutech.edu	Phone: 304.442.3161	Fax: 304.442.1006
Administration – Campus Executive Officer 217 Old Main administration.wvutech.edu	Phone: 304.442.3246	Fax: 304.442.3838
Admissions 210 Old Main admissions.wvutech.edu	Phone: 304.442.3146	Fax: 304.442.3067
Athletics First Floor Baisi Athletic Center goldenbearathletics.com	Phone: 304.442.3121	Fax: 304.442.3499
Bookstore Third Floor Tech Center wvutech.bncollege.com	Phone: 302.442.3106	Fax: 304.442.3007
Financial Aid 205 Old Main finaid.wvutech.edu	Phone: 304.442.3228 Or toll-free 1.888.554.8324	Fax: 304.442.3052
Library Vining Library library.wvutech.edu	Phone: 304.442.3230	Fax: 304.442.3091
Registrar and Records 119 Old Main techregistrar.wvutech.edu	Phone: 304.442.3151	Fax: 304.442.3097
Social Justice B-1 Stewart Hall, WVU-Main Campus techsocialjustice.wvutech.edu	Phone: 304.293.5496	Fax: 304.293.8279
Student Life 322 Old Main studentlife.wvutech.edu	Phone: 304.442.3185	Fax: 304.442.3464

1. General Information

A Short History of WVU Tech

The West Virginia University Institute of Technology (WVU Tech) was established in February 1895 under the name, Montgomery Preparatory School. In its earliest years, the school provided academic preparation for students from Southern West Virginia who were bound for West Virginia University. With the passing of time, as new community needs emerged the school changed in response to these needs. In 1917 the curriculum became vocational in nature and the school was renamed the West Virginia Trade School. In 1921 as its primary function shifted to the preparation of teachers for regional elementary schools the school became a junior college, the New River State School. Ten years later, the school name was changed to New River State College reflecting its mandate to provide baccalaureate education. Then, in 1941, when technical and business programs were added to serve regional businesses and industries, the college became the West Virginia Institute of Technology – and also the only technical college in West Virginia. In 1952 baccalaureate degrees in engineering were added. In 1996, the college was named West Virginia University Institute of Technology, when it became a regional campus of West Virginia University. Subsequently, in 2006, WVU Tech became a full division of West Virginia University.

Institutional Mission and Goals

The mission of West Virginia University Institute of Technology is to prepare students for careers (in engineering and science; and in business, humanities, and social sciences) and to enrich the socioeconomic and cultural lives of its students and members of the communities of Southern West Virginia.

Reflective of its dual roles as division of the State's land-grant, flagship institution and as regional leader in its academic specializations, the primary goal of WVU Tech is to enable the full potential of students and residents of its service area. Toward this end, Tech's educational programs and services are:

- Student-centered – They are accessible; affordable; personalized as much as possible to the unique needs of each individual; focused on the learning process; designed to empower students and to prepare them to become lifelong learners; and assessed annually for their contributions to the learning experience.
- Relevant and current – They prepare students for knowledge-based careers; incorporate technology innovatively; foster critical thinking by students; encourage interdisciplinary problem solving; and have high but attainable expectations for student performance.
- Culturally diverse – They introduce other cultures by way of formal and informal educational programs; focus on the world-wide nature of contemporary human interdependence; and interact with persons and groups different from oneself by way of international programs, professional societies, college clubs, and similar such communities.
- Accountable in the use of resources – They are cost-effective and responsible; if and when appropriate partner with business, industry, government and nonprofit organizations on goals of mutual interest; focus on objectives;

employ creative and entrepreneurial strategies; and report transparently to stakeholders.

Accreditation

West Virginia University Institute of Technology is accredited by The Higher Learning Commission as a division of West Virginia University. West Virginia University is a member of the North Central Association of Colleges and Schools. Information regarding affiliation status may be directed to North Central Association of Colleges and Schools, Higher Learning Commission, 30 North LaSalle Street, Suite 2400, Chicago, Illinois 60602-2504 (Phone: 800-621-7440).

Information regarding specialized program accreditation may be directed to the following accrediting agencies:

Engineering Programs: Engineering Accreditation Commission of ABET 111 Market Place, Suite 1050, Baltimore, Maryland 21202 (Telephone: 410-347-7700).

Engineering Technology Programs: Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, Maryland 21202 (Telephone: 410-347-7700).

Nursing BSN Program: Commission on Collegiate Nursing Education, 1 DuPont Circle, NW, Suite 530, Washington, DC 20036-1120 (Telephone: 202-887-6791).

Location

WVU Tech is located in Montgomery, West Virginia, 28 miles southeast of Charleston, the state capital. Situated on the Kanawha River in the rugged Allegheny Mountains, Montgomery has about 2,000 residents. Montgomery is a friendly and safe community, where city officials and college administrators have cooperated for more than 80 years in partnerships to benefit members of both the campus and community.

Major U.S. highways serving WVU Tech include Interstate Routes 64, 77, and 79, all of which run within thirty miles of the campus, and U.S. Route 60, a major east-west artery that runs adjacent to the campus. Air services are provided at Yeager Airport in Charleston; train services are provided by Amtrak; and bus services are provided by Greyhound, Kanawha Rapid Transit (KRT), and Mountain Transit Authority (MTA).

Although hiking to the top of Tech Mountain is a highly popular campus activity, within sixty minutes of campus is some of the best "wild and wonderful" recreational opportunities in the eastern United States. Hawks Nest State Park, with its aerial tram to the bottom of the New River Canyon, is within 20 miles. The New River Gorge Bridge, the longest arch bridge east of the Mississippi River that plays host to the extreme adventure event, Bridge Day, is within 30 miles. Other nearby parks, Kanawha State Forest, Coonskin Park, Babcock State Park, Summersville Lake and Stephen's Lake, that are between one and two hours away afford abundant opportunities to picnic, swim, boat, and fish. Adventure enthusiasts have next-door access to such highly desirable sports as zip lining, whitewater rafting, rock climbing, hiking, mountain biking, and the exhilarating winter sports of snowboarding, snowshoeing, snow tubing, and alpine, cross-country, and downhill skiing.

Social Justice and Mediation of Conflict

WVU Tech is committed to assuring that all individuals and groups have access to all of the benefits of the University. Because such assurance is possible only in an atmosphere of mutual respect and trust, where basic concepts and principles of social justice are integral to daily practice, all groups on campus (students, faculty, staff, administrators, and constituent groups) have both the legal and moral responsibility to promote opportunity, equality, civility, and respect for all peoples.

WVU Tech is also committed to assuring the resolution of conflict through mediation, a structured process of communication in which conflicting parties are guided in discussion and resolution of matters of conflict.

Information and assistance with filing a complaint or obtaining mediation services is available online at http://diversity.wvu.edu/how_do_i, by telephone at 304.293.5600, by email at diversity@mail.wvu.edu, or by writing the Division of Diversity, Equity and Inclusion, West Virginia University, PO Box 6202, Morgantown, WV 26506-6202.

Tech Golden Bear Alumni Association

The goals of the Tech Golden Bear Alumni Association are twofold: to promote the interests of the University and to establish mutually beneficial relationships between the University, its alumni, and other appropriate constituent groups. All former students who completed academic courses at New River State College, West Virginia Institute of Technology, the Community and Technical College of West Virginia Institute of Technology and West Virginia University Institute of Technology qualify for active membership. Members of the faculty, both current and emeritus, hold honorary memberships, and friends of the University may be named to associate membership. Details about the Tech Golden Bear Alumni Association are available online at http://www.wvutech.edu/alumni, by email at tech-alumni@mail.wvu.edu, by telephone at 304.442.3131, or by writing WVU Tech Alumni Relations, 116 Old Main, 405 Fayette Pike, Montgomery, WV 25136.

2. Student Life and Services

Division of Student Affairs

The Division of Student Life is responsible for programs and services designed to help students achieve their educational goals. Departments under the Student Life umbrella include the Dean of Student's Office, Student Activities, Student Government Association, University Police, Student Health and Counseling Services, Accessibility Services, Career Services & Cooperative Education, the Student Success Center, Student Support Services, Upward Bound, Residence Life, and Dining Services. The Division of Student Life is located in Room 325 of Old Main. For more information about student life at WVU Tech, please call the Dean of Students Office at 304-442-3158 or visit studentlife.wvutech.edu.

Student Conduct Code

Students and student organizations at WVU Tech are free to exercise their fundamental and constitutional rights but in doing so are required to conduct themselves responsibly within the context of the university community. Because student status neither abridges nor extends the rights and responsibilities afforded by local, state, and national law, students are expected to abide by the rules and regulations WVU Tech sets forth governing their conduct. These are delineated inPolicy 31: University Student Conduct Code, which was adopted by the West Virginia University Board of Governors on August 12, 2013, and which is described in the 2014-2015 Bearfacts. A copy of Bearfacts may be accessed online on the Student Life website at studentlife.wvutech.edu.

Student Activities Office

WVU Tech strives to provide students with a memorable college experience through healthy and supportive social, recreational, and educational programs.

The Student Activities Office oversees the registered student organizations that cater to diverse interests (the professions, Greek life, faith, athletics, student government, and health care, among others). Active membership affords opportunities to expand circles of friendship, develop professional networks, pursue personal interests and hobbies, and cultivate talents as leaders and project managers. The Student Activities Office also provides student ID cards, registers students in clubs, and manages Tech Center room reservations.

The Student Activities Office is located in 322 Old Main. Details about programs and services are posted on the Student Life website at studentlife.wvutech.edu.

Student Government Association (SGA)

The Student Government Association (SGA) is made up of students who are chosen in campus-wide elections held each spring. One of the SGA's most important functions is developing a budget by which student activity fees are appropriated to the many activities and organizations found on campus.

In addition to these financial responsibilities, SGA appoints student representatives to serve on most of the committees of Faculty Assembly, including publications, social activities, discipline, financial aid, academic affairs, athletics, and alumni activities.

Residence halls are self-governed through residence hall councils. Students are responsible for managing their operations, social activities, and care.

Fraternal organizations affiliated with WVU Tech maintain their own governing bodies.

University Police

University Police provides patrol-protection to all WVU Tech campus property including, classrooms, laboratories, parking lots and residence halls. WVU Tech officers are vested with full police powers and responsibilities identical to the local sheriff in your home community. Officers are responsible for public safety services including crime reports, investigations, traffic accidents, fire emergencies and enforcement of local, state and federal laws requiring police assistance.

The WVU Tech Police Department is located in the Old Learning Center Building (Beside COBE Hall).For details about campus police services, visit the Student Life website at studentlife.wvutech.edu.

Student Health Services

The Student Health Clinic is conveniently located in Suite 200 in Montgomery General Hospital and is open to all students for walk-in and by-appointment visits. From allergy shots and immunizations to doctor referrals, sports physicals and checkups, the clinic offers a full suite of essential medical services to keep students healthy and productive. Clinic visits are free of charge. Students with chronic health issues should schedule an initial visit so the clinic may establish a treatment plan for emergency situations. For more details, visit the Student Life website at studentlife.wvutech.edu.

Accessibility Services

As a division of West Virginia University, WVU Tech partners with the main campus, to help WVU Tech students achieve success regardless of any physical, learning, psychological, sensory or other documented disability in compliance with guidelines of the Americans with Disabilities Act (ADA), Section 504, of the Rehabilitation Act of 1973, and current case law. For more information about available services, please call 304.981.6210 or visit the Student Life website at studentlife.wvutech.edu.

Career Services and Cooperative Education

The Career Services and Cooperative Education and Internships Office offers students such career services and development assistance as:

- eRecruiting – The Internet connection to job openings, career development workshops, interviews, resume' distribution, and networking.
- Jobs – How to find the right job, whether full-time, part-time, year-round or summer only.

- Career advising – One-on-one help with choosing the right career and the right academic major.
- Job Expos – "Real-time" and "virtual" job fairs held each year.
- Graduate and professional school information – Directories, catalogs, and literature about graduate programs as well as free application materials for the GRE, GMAT, LSAT, MCAT, TOEFL, and TSE examinations.

Cooperative Education and Internship Programs

Through cooperative (co-op) and internship programs, students may:

- Earn money to finance their college education
- Explore career opportunities
- Enrich their classroom learning through real-world experience
- Accumulate actual career-related work experience
- Enhance their marketability after graduation
- Establish valuable professional contacts
- Improve their communication and interpersonal skills

Students who elect the cooperative education (co-op) program alternate longer periods of full-time study with periods of full-time paid employment. They are also required to commit to a minimum of three work periods. Students who elect the internship program gain the same valuable paid work experience but for shorter periods of time, usually one or two weeks.

Career Services and Cooperative Education and Internships is located in 326 Old Main. For more information, please call 304.442.3185 or visit the Student Life website at studentlife.wvutech.edu.

Student Success Center

Opened in April 2013, the Student Success Center (SSC), located on the third floor of Vining Library, is a powerful tool in every WVU Tech student's academic success toolbox. The SSC provides academic advising for first-year students and free peer tutoring and skill building workshops for all WVU Tech students. The SSC also plans and executes new student orientation, a multi-day program designed to assist new students in transitioning smoothly to the WVU Tech community. Among the most popular destinations on campus, the SSC proudly hosted more than 12,000 student visits during its first year of operation.

The SSC is also a quiet and comfortable place to study, hang out with friends or grab a quick snack. The SSC Vending Café provides delicious meals and snacks on the go, and students can use their meal plans make purchases at the Café. The Student Success Center at WVU Tech is dedicated to providing programs and advice to students from orientation to graduation. For more information about the SSC, call 304-442-6262 or visit the Student Life website at studentlife.wvutech.edu.

Student Support Services

Student Support Services (SSS) is a federally funded, educational program designed to help WVU Tech students successfully advance to graduation. Eligibility requirements for SSS include:

- U.S. citizenship

- Acceptance into a baccalaureate degree program

And one or more of the following:
- First generation college student status
- Compliance with the financial aid guidelines of the U.S. Department of Education
- Verification of a documented disability

Students can apply at any time during their undergraduate career regardless of the semester. Participation in the program is on a first-come, first-served basis. Grant aid scholarships are available to those participants who are receiving Federal Pell Grants.

The SSS Office is located in 304 Old Main. More information about the services and operations of the SSS program please call 304-442-3477 or visit the Student Life website at studentlife.wvutech.edu.

Residence Life

Because living on campus helps students both strengthen their college connections and achieve more academically, WVU Tech requires all single first- and second-year students who have completed fewer than 59 credit hours (including transfer credits) to live in University housing. The few exceptions to this policy, which must be verified, are:
- Students who will be residing with parents who live within commuting distance (50-miles radius of Montgomery)
- Married students
- Students with children
- Students 21 years of age and older

Because living on campus is as helpful academically to junior and senior students as well, WVU Tech strongly encourages upper-class students to live on campus as well. Complete information about on-campus living as well as policy and procedures governing campus housing are posted online on the WVU Tech Housing website at housing.wvutech.edu. Residence Life is located in Room 322 of Old Main.

Dining Services

WVU Tech Dining Services provides a variety of culinary options in an inviting and lively environments. Dining Services provides high-quality customer service, uses the finest products, and operates three dining venues on campus to meet the demands of busy WVU Tech students.

The Bears Den

This "all you care to eat" main dining hall on campus is conveniently located at the center of the WVU Tech campus in the Tech Center accepts both the student meal plan and cash and is open for breakfast, lunch and dinner.

Student Success Center Vending Café

Located in the Student Success Center on the third floor of Vining Library the Vending Café offers a wide range of hot and cold beverages, fresh food entrees and snacks. It's a quick and easy option on the student meal plan.

Tech Spot Grab and Go

Newly opened in the Fall 2014 and located in the first floor of the Leonard C. Nelson College of Engineering & Sciences Building, the Tech Spot is the newest dining venue on campus. As a part of the student meal plan, The Tech Spot offers freshly brewed coffees, cold beverages, sandwiches, wraps, salads, and more. Students living in WVU Tech operated residence halls are required to enroll in a resident student dining plan as an integral part of the on-campus living experience. Details about dining options, meal plan requirements, and more services may be accessed online on the dining website at dining.wvutech.edu.

Athletics

WVU Tech supports numerous intercollegiate competitive sports. For men, WVU Tech offers baseball, basketball, cross country, golf, soccer, swimming, and wrestling. For women, WVU Tech offers basketball, cross country, soccer, softball, swimming, and volleyball. WVU Tech is a proud member of the National Association of Intercollegiate Athletics (NAIA), the Association of Independent Institutions, and the United States College Athletic Association (USCAA).

Athletics is housed in the Baisi Center, named in honor of the late Neal Baisi, the standout former coach, athletic director, and lecturer at WVU Tech. The Baisi center is home to WVU Tech's 2000-seat gymnasium, the recently fully renovated Tech swimming pool, the campus wellness center, and the fully-equipped weight room. For more information about athletics, please visit goldenbearathletics.com.

Student Identification Card

Student Identification Cards are required of all students and are used for library privileges, admission to athletic events and facilities, social activities, student health services, and other college functions.

Student ID Cards may be obtained free of charge in the Office of Campus Life, 322 Old Main. There is a fee of $20.00 to replace lost or mutilated cards. To obtain or replace a student identification card, please call 304-442-3183.

Student Organizations

WVU Tech extends recognition to a wide variety of student organizations; permitting students to join together to pursue common interests. Organizations on the Tech campus include fraternities, sororities, professional, and special interest groups. For a list of organizations, please visit the Student Life website or contact the Office of Campus Life, 322 Old Main, 304-442-3183.

Tech Center

The Tech Center, the social hub of the campus, affords such facilities as the Bear's Den dining hall, activity room, television lounge, study lounge, ballroom, bookstore, and game room. In addition, the Tech Center offers a total educational program, through which all on campus can informally get to know and understand one another.

Bookstore

The bookstore at WVU Tech is managed by Barnes & Noble, Inc. This affiliation enables Tech to offer both new and used print textbooks, the eTextbook option, textbook rentals, and a wide variety of merchandise. The bookstore is located on the top floor of the Tech Center and is open on business days year-round. For more information about the WVU Tech Bookstore call 304.442.3106. You can access the online bookstore at wvutech.bncollege.com.

Vining Library

The Vining Library houses more than 153,000 volumes, 380,000 microfiche plates, 18,400 microfilm reels, and is a Federal Government Documents Depository. The library provides access to a variety of electronic research databases, interlibrary loans, and audio-visual media. Textbooks are provided for short term use in the Reserve Section located at the Circulation Desk. Several areas are available for individual study or for use by study groups. Computers, printers, photocopiers, and wireless internet access are also available at the Vining Library. The third floor of Vining Library is home to WVU Tech's Student Success Center. For information and links to library resources can be found at library.wvutech.edu.

First-Year Seminar (WVUE 191)

Under the aegis of academic affairs, the first-year seminar is a required one-credit course for all first-time, full-time first year students and full-time transfer students who enter with fewer than 30 credit hours. This course is designed to assist new students in making a smooth transition to the Tech community, and it includes units in goal setting, learning preferences, critical thinking, information literacy, and communication, among others, all of which are essential to successfully completing the all-important first semester. Instruction is provided by members of the faculty and student life personnel, and occasional guest experts are invited as speakers. Students have an opportunity to establish early relationships with faculty in their academic departments and confer with their academic advisors to develop short- and long-range academic and career plans.

3. Admission

Introduction

WVU Institute of Technology seeks to recruit and admit students who aspire to careers in engineering, sciences, business, humanities, social sciences, and nursing. Because it is important that the abilities and interests of students are appropriately matched to the rigor of Tech's academic programs, each candidate's application form, transcripts, and test results are carefully reviewed for compliance with admission standards. We assure equal educational opportunity to all and welcome applicants without regard to race, religion, color, sex, sexual orientation, marital status, age, handicap or disability, veteran status, or national origin.

WVU Tech is subject to the undergraduate admissions policies and procedures of the West Virginia Higher Education Policy Commission (HEPC). These are described in detail in *Series 23: Standards and Procedures for Undergraduate Admissions at Four-Year Colleges and Universities*. (See https://www.wvhepc.org/resources/Series_23_2-7-13.pdf.)

The WVU Tech application form is available online at admissions.wvutech.edu or, a paper copy may be obtained by writing WVU Tech Office of Admissions, 405 Fayette Pike, Montgomery WV, 25136, or by phoning 1.888.554.8324. In addition, application forms may also be available from high school counselors throughout West Virginia.

Applications are processed on a rolling decision basis, meaning that new students can enter WVU Tech during the fall, spring, or summer term. Because applications are considered on a first-come, first-served basis, students are encouraged to apply at their earliest opportunity. Those who apply for the fall term before May 1 will automatically receive priority consideration for institutional scholarships.

Because some degree programs have standards that exceed baseline requirements for admission to the University, admission to WVU Tech does not necessarily constitute admission into a specific degree program.

General Admission Categories

Freshman Students

Freshman applicants should submit the WVU Tech application form, their official final high school transcript (directly from the high school counselor), their ACT or SAT test scores, and proof of immunizations. Note that the graduation date shown on the final high school transcript must proceed the first day of classes of the term the student will enter WVU Tech.

Courses that freshman applicants are expected to have successfully completed in high school include:

4 units of English (including grammar, composition, and literature)
3 units of social studies (including U.S. History)
4 units of college preparatory mathematics (three units must be algebra I and higher, Math I and higher; Transitional Math for Seniors will be accepted.)
3 units of science (all must be college preparatory, preferably biology, chemistry, or physics)
2 units of the same foreign language
1 unit of fine art

In addition, applicants must have achieved EITHER a minimum 2.0 high school GPA and composite ACT score of 18 (or SAT score of 870) OR a minimum 3.0 high school GPA.

Applicants to the Leonard C. Nelson College of Engineering & Sciences must have achieved a minimum ACT Math Score of 19 (or SAT math score of 460.)

Transfer Students: Intra-University

Students at WVU – Main Campus and Potomac State College of WVU who wish to transfer to WVU Tech must: (1) submit the Change of Campus form that can be accessed at techregistrar.wvutech.edu/forms; and (2) fulfill all general admission requirements and all stipulated program admission requirements. If the transfer will take place before two full semesters have been completed, the student must also fulfill all freshman admission requirements.

Transfer Students from Other Accredited Institutions

Students wishing to transfer from a regionally accredited institution must be academically eligible to return to that institution and must have earned at least a 2.0 GPA for the academic work being transferred. The official acceptance of transfer students must take place at least one month prior to the registration date for the term of their admission.

Applicants should submit the WVU Tech application form, official transcript(s) directly from each college attended, and for applicants with fewer than 30 credit hours (excluding developmental courses), ACT or SAT test scores and an official copy of the high school transcript.

WVU Tech is subject to the transfer guidelines adopted by the HEPC as described in *Series 17: Transferability of Credits and Grades at West Virginia Public Colleges and Universities*. (See https://www.wvhepc.org/resources/133-17.pdf.) Thus, WVU Tech will accept a maximum of 72 semester hours of lower-division credits and grades from public community and technical colleges or regional campuses. Additional credit from accredited four-year colleges and universities may be accepted, but the major department and the registrar will determine which courses may apply to a particular degree.

Students transferring fewer than 24 credit hours must meet freshman admission standards, and students transferring fewer than 30 credits must take the course, WVUE 191, First-Year Seminar.

All transfer students will be required to complete at least 36 hours of credit in residence at WVU Tech prior to their graduation. Transfer students in engineering programs must take at least 24 credit hours of upper division engineering courses in residence at WVU Tech, and these must include the capstone design course(s) for the particular program.

Evaluation of Transfer Credits

All credits, grades and quality points shall be entered on the permanent record card of transfer students. Courses from non-accredited colleges will be shown on the transcript, but will not be accepted for credit. An exception is that such courses may be accepted for the Regents BA degree program with the approval of the program coordinator. Evaluation of transfer credits will be approved by the Registrar.

Transfer students must fulfill the graduation requirements of the college, including 40 hours of 300-400 level courses. Credits earned at a junior or community college may not be used to satisfy this requirement.

International Students

International students are urged to visit the WVU Tech web page for international students at international.wvutech.edu, where the application process and the scholarship program that WVU Tech automatically provides to academically qualifying international students are explained in depth.

The following materials and documents are required of international applicants:

- International application form
- Application service fee
- Official academic records from all secondary and post-secondary institutions attended, showing course titles, dates courses were taken, and grades earned
- Diplomas or certificates showing degrees earned
- For international applicants from non-U.S. schools, the original documents or certified (attested) copies of original documents in the original language of issue and the official English translation of these documents
- For international students who have studied at U.S. secondary or post-secondary school(s), transcripts sent directly to WVU Tech by the school(s)
- Proof of adequate financial resources to cover expenses of study
- TOEFL or IELTS scores, directly by testing organization

Application materials are due well in advance of the intended start dates, as reflected in the table below:

Desired Admission Date	Due Date for International Application	Due Date for All Other Documents
Fall Semester	April 1	June 15
Spring Semester	October 1	November 1
Summer Semester	February 15	March 15

All documents received by WVU Tech in connection with international applications for admission become the property of the University. Under no circumstance will documents be duplicated, returned to the applicant, or forwarded to any agency or other college or University. Admission documents of applicants who do not enroll in the college will be destroyed after one year.

GED Students

Applicants who have completed the General Equivalency Degree (GED) with an average standard score of 2250 (450) or above should have the following sent to the WVU Tech Office of Admissions: (1) GED scores sent directly by the State Department of Education; and (2) transcript from high school last attended sent directly by the high school.

Applicants who earned the GED fewer than five years prior to applying must also have ACT or SAT scores sent to WVU Tech. Admission requirements for applicants who earned the GED five or more years prior to applying and have not attended another college may be waived.

Homeschooled Applicants

WVU Tech will accept admission applications from homeschooled students and those graduating from non-accredited high schools. If students are homeschooled or attendants of a non-accredited high school, they must submit a complete undergraduate application and SAT or ACT test scores. Homeschooled students must also submit course documentation as well as complete required courses to be eligible for admission. Immunization records must also be submitted before enrollment.

Homeschooled students must submit typed documentation (a manuscript or description) of their coursework. Minimally, this must include:

- The student's name.
- A list and description of courses completed. Descriptions should include duration of study and content of the course.
- Grades earned for the courses completed.
- The number of credits earned for each course.
- Graduation date.

The courses must be broken down by 9th, 10th, 11th, and 12th grade years. The transcripts must bear the signature of the person who administered the curriculum.

Homeschooled applicants and applicants who attended non-accredited high schools must furnish documentation to validate learning in the academic core areas shown below. If the student completed units at an accredited high school or college then transcripts of the units taken must be provided to WVU Tech.

The following high school unit requirements must be met for freshman admission:

- 4 units of English (including grammar, composition, and literature) 4 units of college preparatory mathematics (three units must be Algebra I and II and Plane Geometry.) Students interested in majors that emphasize math and science are encouraged to take math beyond Algebra II (such as pre-Calc, Calculus, and Statistics).
- 3 units of social studies (including U.S. History)
- 3 units of science (ALL units must be laboratory science.) Recommended units include: Biology, Chemistry, Physics, Anatomy, and Environmental Science
- 2 units of the same foreign language. American Sign Language is acceptable.
- 1 unit of fine arts (such as: Music, Band, Art, Theater, Dance, Drama, and Performance).

Upon completion of an application file with the required documentation, WVU Tech will review the entire application file of an individual who has been homeschooled or attended a non-accredited high school. All application materials must be received by the regular admission deadline. Note: West Virginia residents who were homeschooled and are applying for WV PROMISE Scholarship or WV Higher Education Grant must have GEDs. Further questions regarding this should be directed to the WV Higher Education Policy Commission.

ACCESS (Attaining College Credits and Experiences while in Secondary School)

High school juniors and seniors may earn credit hours toward a degree at WVU Tech prior to their graduation. To be eligible for ACCESS admission, the high school junior or senior must:

- Complete the application for ACCESS Admission

- Submit a high school transcript
- Submit a letter of permission from your parent(s) or guardian(s)
- Submit a letter of recommendation from the guidance counselor or principal of the high school attended
- Have completed the sophomore year of high school
- Have earned a minimum average of B (3.00) for all high school courses attempted

Students selected for ACCESS admission may enroll for any freshman level class as long as the student has a sufficient academic background. Students enrolled under this program will receive grades and quality points as earned. Transcripts will be forwarded to any other college upon request of the student; however, the acceptance of these credits toward a degree will be determined by the individual college. Tuition and fees will be the same as those for regular college students.

Advanced Admission of High School Seniors

High school students who wish to spend their senior year at WVU Tech may apply for advanced admission as a full-time student. To be eligible for full-time advanced admission, the high school senior must:

1. Complete an application for advanced admission as a full-time student
2. Submit a high school transcript and ACT or SAT test scores
3. Submit a letter of permission from your parent(s) or guardian(s)
4. Submit a letter of recommendation from the guidance counselor or principal of the high school attended
5. Have completed all requirements for graduation from high school except senior English
6. Have earned a minimum average of 3.5 GPA or higher and a 26 ACT composite or 1170 on the SAT

Accepted students are admitted as full-time students with all of the rights and privileges offered other students. Cost of tuition and fees will be the same as those for all other full-time students.

Early Enrollment Students

Agreements are in place with several high schools in Kanawha and Fayette Counties by which students may enroll in selected college courses that also satisfy requirements for high school graduation. High school students who are interested in these early enrollment classes may obtain information about them from the high school counselor or the WVU Tech Office of Admissions.

Veterans

WVU Tech is approved by the WV Higher Education Policy Commission's State Approving Agency for enrollment of veterans and dependents of deceased or 100% disabled veterans eligible for education benefits under current regulations. Those serving in the Army or Air National Guard or those on Active Duty or serving in a Reserve Unit may also qualify for educational assistance. The Veterans Affairs Office serves as the official institutional contact point for military and veterans' programs and services.

New students who have not used their VA educational benefits must apply to the U.S. Department of Veterans Affairs and/or their National Guard or Reserve Unit to establish their eligibility for educational benefits. Those receiving funding through the U.S Department of Veterans Affairs must submit a Certificate of Eligibility and those funded

under WV National Guard programs must submit a Notice of Basic Eligibility to the Veterans Affairs Office in order to be certified for educational benefits. Transfer students who have used educational benefits at another school must contact the Veterans Affairs Office and submit a Change of Program or Place of Training Form to receive benefits. All transfer credits must be reported to the Veterans Affairs Office and official transcripts must be submitted to the Office of Admissions. The student must also officially apply for WVU Tech admission and select a VA approved academic program before being certified to receive educational benefits. These guidelines also apply to students who are only enrolled in Extended Education courses. Continuing students need only verify their continued enrollment with the Veterans' Affairs Office to continue their educational benefits. Please see techregistrar.wvutech.edu/va

It is the student's responsibility to ensure that all tuition and fees are paid, unless they are enrolled under the Post 9/11 GI Bill (Chapter 33). Educational benefits checks should start arriving within 6 to 8 weeks after certification.

Any changes in approved course schedules including adding, dropping, and withdrawing from a course or courses MUST receive prior approval from the Veterans Affairs Office. Failure to obtain prior approval may jeopardize continued funding and may result in a significant overpayment of educational benefits that must be repaid to the VA. Students withdrawing from the institution must also contact the Veterans Affairs Office to avoid any overpayment. Any overpayment of education benefits will be calculated within the pay period in which the change occurred. Changes of academic program major MUST receive prior approval from the Veterans Affairs Office and U.S. Department of Veterans Affairs or appropriate Guard or Reserve Unit.

Students receiving educational benefits are expected to make satisfactory progress in attaining their educational goals and to attend their classes on a regular basis. The Veterans Affairs Office will closely monitor academic progress and class attendance and any students not following these requirements may lose their benefits.

All forms necessary for educational benefits are available in the Office of the Registrar. – Phone 304.442.3151– E-mail: Tech-Veterans-Affairs@mail.wvu.edu

Other Admission Categories

Transient Students

A student wishing to take WVU Tech courses for transfer to another college may do so but, when registering, must present an official transient student permit from the college accepting the credits. This permit should include the number of semester hours permissible for transfer. The total cost of tuition and fees for the transient student is the same as that paid by regular WVU Tech students. Students from the WVU Morgantown campus or Potomac State College must either complete a Dual Campus form if they will also be taking classes at their home institution, or a Change of Campus form if all courses during the term will be taken at WVU Tech. Forms can be found at techregistrar.wvutech.edu/forms.

WVU Tech students who wish to take courses at another institution for credit toward a WVU Tech program must meet with their advisor and complete a Transient Student Form. This form indicates the courses to be taken at the other institution and the course equivalencies when transferred to WVU Tech. This form must be submitted to the Registrar's Office before the student attends another institution. If the student will be taking courses at WVU Morgantown campus or Potomac State College, they must either complete a Dual Campus form if they will also be taking classes at WVU Tech, or a Change

of Campus form if all courses during the term will be taken at another campus. Forms can be found at techregistrar.wvutech.edu/forms.

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Special Students

An individual who wishes to take courses, but not for a degree or certificate, is classified as a special student and may register for part-time studies, taking fewer than 12 hours of course credit in any semester. A special student who attempts equal to or more than 12 credit hours must apply for admission as a degree candidate by filing full credentials with the Office of Admissions. An overall grade point average of 2.00 or higher is required for admission. The total of tuition and fees for the special student is the same as paid by regular college students.

An exception to this policy is granted to CTED students who are taking courses for certification for continuing employment, but who are not degree seeking. These students are admitted under the 049T Career Tech Education Certificate major code, and are not bound by the 12 hour limit on special students.

Academic Common Market

The Academic Common Market provides opportunities for residents of other states that are members of the Southern Regional Education Board to attend selected programs in West Virginia at reduced tuition rates. Application must be made through the higher education authority of the state of residence. Depending upon the state of residence, the WVU Tech Printing Management and Industrial Technology programs are currently available through the Academic Common Market. The Athletic Coaching Education and Aerospace Engineering 2+ programs are also available by application through the WVU Office of Undergraduate Affairs.

Readmission of Students in Good Standing

Students who left WVU Tech in good standing and who return to college after an absence of one or more terms, excluding summer, must apply for readmission.

Readmission of Suspended Students

First-level suspension is assigned when the student's GPA falls below 2.0 for two consecutive semesters. The student on first-level suspension may request a waiver from the Dean of the college in question by way of written request and agreeing to an academic load not to exceed 14 credit hours. In cases when the waiver request is not approved, first-level suspension requires that the student sit out for a minimum of one semester before reapplying to WVU Tech.

Second-level suspension is assigned when the student returning from a first-level suspension fails to earn a 2.0 GPA in the next attempted semester. Second-level suspension *cannot* be waived and requires that the student sit out for at least one year before being reapplying.

Third-level suspension is assigned when the student returning from second-level suspension fails to earn a 2.0 GPA in the next attempted semester. Third-level suspension *cannot* be waived and requires the student to sit out for at least four years before reapplying.

The student suspended at any of these levels is entitled to petition the Committee on Classification and Grades of the Faculty Assembly for readmission. The Committee will evaluate the academic ability, character, circumstances, motivation, and any evidence

presented by the student of improved circumstances or conditions that would support the application for readmission. If the Committee approves the petition, the student would return on academic probation and under whatever special circumstances the Committee deems advisable. The student would thus not have to reapply.

It is important to note that readmission to the college does not automatically mean readmission to the previous program.

Policies Affecting Entering Status

Advanced Placement Program (AP)

Academically qualifying high school juniors and seniors may earn college credit through the AP program of the College Entrance Examination Board. At the completion of the AP courses three-hour examinations will be administered, the final scores on which may demonstrate equivalency to selected WVU Tech courses. Details about the AP program are posted on the HEPC web page under academic affairs at www.wvhepc.org/academic/AdvPlace_List_2013-2014.pdf

College Level Examination Program (CLEP)

Incoming students who have gained a significant level of maturity through life experiences may receive college credit for their educationally-related experiences through the CLEP programs of the College Entrance Examination Board. Up to 35 hours of general education or elective credit may be earned through successful performance on CLEP general examinations. Although this program was designed primarily for adults, exceptionally well qualified high school seniors may elect the CLEP program. Courses for which credit may be earned through CLEP examinations are listed online at http://admissions.wvu.edu/r/download/134708

International Baccalaureate (IB)

WVU Tech welcomes applications from students who have attended high schools that offer the international baccalaureate program. Credit given varies with level (standard or higher) and with score. The chart can be found at http://admissions.wvu.edu/admissions/equivalency.

Academic Forgiveness

WVU Tech allows academic forgiveness to some students who were not successful in their prior experiences at West Virginia colleges and universities. To be eligible the student cannot have been enrolled in any higher education institution for the four years prior to their admission to WVU Tech.

The petition for academic forgiveness is available on the registrar's web page at: techregistrar.wvutech.edu/academic_policies_and_procedures. The following conditions and rules apply:

- The request for academic forgiveness must be submitted during the term in which the student is initially readmitted. Assuming that all requirements are met, academic forgiveness would become effective on completion of the readmission semester.
- The official recommendation for academic forgiveness must be approved by the dean of the college the student plans to enter.

- Upon admission to WVU Tech under this policy, the student will receive credit for all courses completed with a grade of D or higher.
- The student admitted under the academic forgiveness policy must satisfactorily complete all coursework required by the respective program and academic college.
- Under no circumstances may the student admitted under the academic forgiveness policy complete fewer than 32 credit hours at WVU Tech prior to earning a degree.
- Students admitted under the academic forgiveness policy are expected to complete the required course work at WVU Tech. Any exceptions must be submitted to the department chair in writing.
- A student admitted under the academic forgiveness policy is subject to all regulations regarding probation, suspension, and expulsion.

If the application is approved, the changes will be applied to the student's WVU Tech credits and transfer credits as applicable. Academic forgiveness is applied by excluding the GPA hours for which an "F" was earned. The "F" grades will still appear on the transcript, however, forgiven "Fs" will have an "E" notation and the hours will no longer appear in the GPA hours and will not be used in the calculation of the GPA. This can be viewed through the MIX/STAR academic transcript online once processed.

This policy pertains only to the calculation of the GPA required for graduation and does not pertain to GPA calculated for special academic recognition (such as graduation with honors) or to requirements for professional certification which may be within the province of licensure boards, external agencies, or the West Virginia Board of Education.

Academic Forgiveness for Regents' Bachelor of Arts (RBA) Students

It is not necessary for students admitted to the RBA program to petition for academic forgiveness. WV HEPC policy (Regents Bachelor of Arts Degree Program Administrative Guidelines revised April 2007) dictates that all "F" grades received four years or more before admission to the RBA program are disregarded. Also, the only residence requirement for RBA students is that 24 credit hours must be earned within the state higher education system, including the community and technical colleges.

4. Expenses, Payments, Refunds, and Financial Aid

Educational Expenses

Educational expenses for which to plan include tuition, programmatic fees, student activities fees, room, board, and books. The schedule of costs for the current academic year at WVU Institute of Technology is available online at www.wvutech.edu/tuition_and_fees.

The student enrolled in 12 or more credit hours is classified for purposes of tuition and fees as a full-time student. The student enrolled for fewer than 12 hours is classified for purposes of tuition and fees as a part-time student. The student who audits a course, that is takes it but does not receive academic credit, is charged the same for auditing as if the courses were being taken for credit.

Personal expenses, such as transportation and entertainment, are over and above costs assessed by WVU Tech.

Residency Policy for Purposes of Tuition and Fees

Legal residents of West Virginia pay "resident" tuition at WVU Tech, and residents of other states and nations pay "non-resident" tuition. Residency policy is established in the WV Higher Education Policy Commission Series 25.
https://www.wvhepc.org/resources/133-25.pdf

Students who believe they have been incorrectly classified with respect to residency or who have had a change of status that affects their residency may submit a petition for reclassification to the Associate Provost. Appeals may be approved at that office or referred to the Residency Committee for further consideration. Appeals that are unsuccessful at that level may be taken to the Campus Executive Officer as the final level of appeal. The appeal form can be found at techregistrar.wvutech.edu/r/download/89328 It is important that petitioners include all requested documentation with the appeal form.

Paying Expenses

Student accounts may be paid online by electronic check or credit card through the West Virginia University STAR information system. Account details (current charges, payments previously made, and anticipated credits from financial aid and other third party-sources) are available at mix.wvu.edu (requires MIX ID and password).

Student accounts may be also be paid by mail or in person at the Cashier's Office, 212 Old Main. WVU Tech accepts payments by cash (do not send cash through the mail), check (payable to WVU Institute of Technology and bearing the Student ID number), money order, or cashier's/bill pay check.

Payments by check, money order, or draft are subject to the Non-Sufficient Funds Check Policy, a copy of which is available in the Cashier's Office. A service charge of $25.00 is assessed for each check returned unpaid by the bank upon which it was drawn, unless the student can obtain an admission of error from the bank. If the check returned by the bank was in payment of tuition and registration fees, the business office will declare the fees

unpaid and registration canceled. The return of the check unpaid constitutes late registration and a late fee may be levied. In such case, the student may be reinstated upon redemption of the unpaid check, payment of the $25.00 insufficient fund check assessment, and payment of the applicable late fee of $50.00. The service charge on an unpaid, returned check is subject to change in accordance with state law.

Two payment plans are available to students, a monthly payment plan through Sallie Mae (https://tuitionpay.salliemae.com/TuitionPay/Welcome.aspx?wvu) and, during the fall and spring terms, the WVU Tech 60/40 installment plan, which requires at least 60% of the account balance prior to the start of classes and the remaining 40% due no later than the end of the sixth week of the term. The 60/40 installment plan is not available during the summer term.

Installments and any other payments not made by their due date will be assessed a late fee of $50.00. Therefore, it is important to allow 5-7 business days for payments to be received and posted.

Arrangements for payment from officially accepted scholarships, loan funds, grants, or contracts should be completed prior to the start of classes.

Third-party billing may also be arranged. Should the third-party sponsor not pay all assessed charges, the student is responsible for paying the difference by the due date.

WVU Tech will withhold academic transcripts, diplomas, and official reports about the student's record as long as the student has unpaid financial obligations.

Students in debt for a previous semester or term are not permitted to register until all obligations have been paid.

The complete description of billing and payment options may be accessed at studentaccounts.wvu.edu/billing.

Refunds

Refunds of Tuition and Fees for Dropped Classes

If a student drops one or more classes the first week of the semester and has fewer than 12 hours after the drop, the following refund policies apply:

- Tuition, special, and refundable miscellaneous fees are refundable at 100% for the dropped classes during the first week of classes only.
- Refunds of tuition and fees for summer terms will be pro-rated based on the part of term.
- Lab fees are refundable at 100% during the first week of classes only and nonrefundable thereafter.
- Miscellaneous fees that are nonrefundable include transcript fee, graduation fee (if graduating), late payment fee, and reinstatement fee.

Classes dropped after the first week of the term will not be eligible for any refund of tuition and fees, including laboratory fees.

Refunds of Tuition and Fees for Withdrawal from the University

The student who officially withdraws from WVU Tech is eligible for a prorated refund of tuition, special fees, and certain miscellaneous fees, based upon the date of withdrawal. To withdraw officially and receive a refund, the student must submit a completed withdrawal form, available at the Records and Registration Office or on line at techregistrar.wvutech.edu/forms. Every effort is made to process refunds within 30 days.

Refund schedules of tuition and fees for official withdrawal are determined by the WV Higher Education Policy Commission, and for the fall and spring semesters these are as follows:

1st Week	100%
2nd Week	90%
3rd and 4th Weeks	70%
5th and 6th Weeks	50%
7th and Subsequent weeks	No refund

Refund periods for the summer semester, which are considerably abbreviated, are posted online at studentaccounts.wvu.edu/refunds .

Lab fees are refundable during the first week of classes only. Nonrefundable fees include the transcript fee, graduation fee (if graduating), late registration/payment fee, and reinstatement fee.

Exceptions to the refund policy for withdrawal from the University include:

- Students entering the armed services of the United States may be granted full refund of refundable fees (but no course credit) if the call comes before the end of the first three-fourths of the semester. If the call comes after that, full credit for courses may be granted if the student has passing grades at the time of departure. Students must submit a copy of their deployment orders to the WVU Tech Office of the Registrar.
- Students withdrawn administratively due to catastrophic illness or death will be provided a refund as approved by the Dean of Students or his/her designee.

Questions about WVU Tech's refund policies should be directed to the Chief Financial Officer.

If a student receives financial aid and s/he withdraws, s/he will be subject to the Refund and Repayment Policy. Federal regulations require that WVU Tech calculate eligibility for students who completely withdraw or are dismissed before completing the enrollment period. Students who receive all unsatisfactory grades (defined as at least one "F" and no passing grades) at the end of the grading period will be considered as unofficially withdrawn at the semester mid-point unless documentation is available that demonstrates continued class participation. Application of this policy may result in the necessity for a student to return financial aid funds to various Title IV federal aid programs.

A student earns Title IV federal aid based upon the length of time the student remains enrolled during the enrollment period. Students who withdraw on or before completing more than 60% of the semester may be required to return a portion of federal financial assistance. The determination of 60% of the term is computed by dividing the total number of calendar days in the term into the number of calendar days completed as of the date of withdrawal. Scheduled breaks of five consecutive days or more are excluded. The percentage of Title IV assistance which the student has earned is equal to this percentage of

the term completed. If the withdrawal occurs after more than 60% of the term is completed, the percentage earned is considered to be 100%.

If more Title IV aid was disbursed than was earned by the student, WVU is required to return the less of (1) the unearned aid percentage of institutional charges or (2) the unearned aid percentage applied to the total Title IV aid received. The student must return unearned aid for which s/he is responsible after subtracting the amount the school will return. Funds are returned in the following priority:

1. Unsubsidized Direct Stafford Loan
2. Subsidized Direct Stafford Loan
3. Perkins Loan
4. Direct PLUS (Graduate Student)
5. Direct PLUS (Parent)
6. Pell Grant
7. FSEOG
8. TEACH Grant

The return of financial aid may result in unpaid charges to WVU for tuition/fees and room/board. WVU will bill the student for any balance due. Students who owe a repayment to any federal financial aid program are no longer eligible for financial aid at any post-secondary institution. Eligibility may be regained after repayment is satisfied. If less Title IV aid was disbursed than was earned by the student, the student is entitled to a post-withdrawal disbursement within thirty days of withdrawal. Check with the Financial Aid Office for requirements.

Refunds of Residence Hall Fees

A resident who takes possession of an assigned residence hall space, and officially checks out in accordance with prescribed procedures will receive a refund that is prorated based on the number of days remaining in the term. Termination of the residence hall contract for disciplinary reasons may result in forfeiture of all prepaid fees.

Refunds of Board Fees

Board fees are refunded on a daily pro-rated basis.

No refunds are provided for housing and board due to closures of the institution as long as the residence halls are open and food service is being provided.

Financial Aid – Types, Eligibility Requirements, and Deadlines for Application

Grants, scholarships, loans, and employment are awarded through the Financial Aid Office to more than half of the students attending WVU Institute of Technology. Students seeking financial aid for a full academic year are encouraged to begin the application process as soon after January 1 as possible. Please note that the student applicant and/or the parent or guardian may be required to submit copies of federal tax forms to verify the accuracy of personal data. Students must be admitted to WVU Tech before financial aid can be awarded.

To apply for financial aid, first apply for a US Department of Education student PIN and a parent PIN (if you are considered a dependent student for financial aid purposes) at www.pin.ed.gov. You will use the PIN to sign your online Free Application for Federal Student Aid (FAFSA), review your processed information, correct FAFSA data, and conduct other important business directly with the US Department of Education. Save the PIN you are issued because you will need it for future transactions. The FAFSA form is used to determine eligibility for the:

- Federal College Work Study (CWS)
- Federal Pell Grant
- Federal Perkins Loan
- Federal Stafford Loans
- Federal Supplemental Educational Opportunity Grant (SEOG)
- Higher Education Adult Part-Time Award
- Promise Scholarship
- West Virginia Higher Education Grant

The FAFSA form is generally available in the offices of high school counselors and principals by late November of each year. It may also be accessed online www.fafsa.ed.gov. Mailed applications must be postmarked by March 1 of the calendar year of enrollment. It is necessary to submit the FAFSA form on an annual basis in order to continue being considered for federal and state financial aid programs.

The Financial Aid Office helps students and members of their families locate, apply for, process, and maintain eligibility for various types of financial aid. Members of the staff provide financial aid education through individual counseling, campus promotional events, and group presentations; they investigate and resolve individual financial aid questions; and they strive to provide timely and accurate financial aid processing that is in full compliance with all federal, state and University regulations.

The Financial Aid Office is located in 205 Old Main. Policy and procedures governing the awarding of financial aid may be found online at finaid.wvutech.edu.

WVU Tech will make every effort to provide financial assistance to eligible students. However, if the student and/or the parent or guardian fails to provide the necessary information in a timely manner, the University is not obliged to defer payment of fees.

Types of Federal Financial Aid and Application Due Dates

- Federal College Work Study – www.ed.gov/programs/fws/ - Recipients may work a maximum of 20 hours per week during full-time enrollment periods or a maximum of 40 hours per week during non-enrollment periods, such as breaks, holidays, and summers, providing there is evidence of intent to enroll the following semester. The rate of pay per hour is determined by the job

description, with the lowest rate being equal to federal minimum wage. The deadline for FAFSA submission to the Processing Center is April 1.

- Federal Direct Plus Loan – studentaid.ed.gov/types/loans/plus - The parent or guardian must authorize a credit check and, if approved, submit the Master Promissory Note (MPN). If the loan request is denied, the student may apply for an additional unsubsidized loan.
- Federal Direct Subsidized and Unsubsidized Loan - The Master Promissory Note (MPN) and entrance loan counseling must be completed by all first-time loan borrowers.
- Federal Pell Grant – Deadline to submit application form is the last day of enrollment in a given academic term.
- Federal Perkins Loan – A low-interest (5%) loan, the amount for which is determined by availability of funds - The Master Promissory Note (MPN) and entrance loan counseling must be completed by all first-time loan borrowers. Deadline for FAFSA submission to the Processing Center is April 1.
- Federal Stafford (Subsidized and Unsubsidized) Loan – www.aessuccess.org - A low interest loan made available through a bank, credit union, or savings & loan.
- Federal Supplemental Education Opportunity Grant (SEOG) - Deadline for FAFSA submission to the Processing Center is April 1.

Other Types of Financial Aid and Application Due Dates

- Campus Based Aid – Decisions about campus-based aid based upon consideration of both the FAFSA and the electronically submitted needs analysis materials. Deadline for application is April 1.
- Institutional Scholarships – Scholarship usually have unique and individual requirements and deadlines, and amounts awarded vary by program.
- Job Location and Development Program – http://ifap.ed.gov/sfahandbooks/attachments/0102Vol6Ch6.pdf - Encourages development of off-campus, part-time or full-time employment for all students regardless of financial need.
- SMART Scholarship - http://smart.asee.org - The Science, Mathematics And Research for Transformation (SMART) Scholarship for Service Program is an opportunity for students pursuing an undergraduate degree in Science, Technology, Engineering, and Mathematics (STEM) disciplines to receive a full scholarship and be gainfully employed upon degree completion.
- Promise Scholarship – https://secure.cfwv.com/Financial_Aid_Planning/Scholarships/Scholarships_and_Grants/West_Virginia_PROMISE.aspx - Deadline for application by rising freshman students is March 1, 2013.
- State Work-Study Program – Similar to the Federal Work-Study Program except it is not based on need and 100% of wages are paid by the employer.
- West Virginia Higher Education Grant – The FAFSA form must be postmarked by March 1 of the calendar year of enrollment.

To the maximum extent practicable, WVU Tech provides employment that reinforces the educational programs or vocational goals of the college work-study students. Once notified of available positions by the various departments of the University, the Financial Aid Office staff has the sole responsibility for job placement.

Eligibility for Federal Financial Aid

To be eligible for, and keep, federal aid the student must:

- Enroll at least half time in an eligible degree or certificate program

- Be a U.S. citizen or an eligible non-citizen with a valid social security number
- Demonstrate financial need (except for certain loans)
- Make satisfactory academic progress as determined by the Satisfactory Academic Progress Policy for Financial Aid, which is available in the Office of Financial Aid
- Not fall into default on a Federal Perkins Loan, Federal Stafford Loan, or Federal PLUS loan at any school
- Not owe a refund on a Federal Pell Grant or a Federal Supplemental Educational Opportunity Grant or any other federal program at this or any other school
- Be registered with Selective Service, if male and between the ages of 18 and 25.

Satisfactory academic progress (SAP) is used to define successful completion of coursework to maintain eligibility for student financial aid. Failure to meet these standards will cause the aid recipient be placed on financial aid probation or suspension.

Qualitative standard: must maintain a minimum cumulative GPA of 2.0.

Quantitative standard: must complete a degree or certificate program within 150% of the average length of the program, and must successfully complete a minimum of 67% of all attempted credit hours each semester.

At the end of the fall and spring semesters, a review of all financial aid recipients occurs to measure progress. All credits attempted in residence are reviewed, including credits attempted without financial aid. Students who initially fail to meet the minimum standards of progress will be placed on financial aid probation.

Probationary students are advised in writing of the terms of probation and allowed to receive financial aid. Probationary status cannot be appealed but may be updated based on grade changes due to timing, completion, or error. Students who fail to meet the terms of probation are suspended from financial aid eligibility, and are notified in writing. Students with mitigating circumstances may appeal for an extension of a probationary period. Documentation of special circumstances, successful resolution of problem(s) causing academic distress and a program of study plan approved by the academic advisor must be submitted. Students will be notified of a decision in writing.

Students suspended from financial aid eligibility who do not have mitigating circumstances may be able to request reinstatement for financial aid. They must have made positive progress towards their degree since suspension from eligibility. Students may submit a Satisfactory Academic Progress Appeal Form for review. Students will be notified of a decision in writing.

If a student is enrolled in dual degree programs, seeking a second undergraduate degree or changing majors, an extension of the maximum timeframe provision of this policy may be requested. Requests will be evaluated on a case-by-case basis. The credits earned under all majors will be included in the calculation of attempted, earned, and maximum timeframe credits, as well as the GPA calculation. If a student continues to take classes towards a second major after completing all required coursework for a first degree that has not yet been awarded, aid may continue as long as SAP standards are met and the maximum timeframe is not exceeded.

All credits attempted and earned at any West Virginia University campus (WVU Tech, Morgantown or Potomac State) will be included when calculating the maximum time frame, GPA, and credit completion.

If a student is required to withdraw for military service, credit completion and maximum timeframe requirements will be waived for the semester of your official withdrawal.

College credits earned while a student is in secondary education will be included in the cumulative credit completion ratio, GPA, and the maximum timeframe calculation.

Determining Financial Need

The amount and combination of financial aid resources that can be awarded are usually governed by financial need. Need is the difference between the total cost of attending college and Expected Family Contribution (EFC), which is the amount the student and the student's family will contribute toward this. The difference between total cost and the EFC is the projected financial need. Sources of revenue, including income, assets, and benefits (for example, unemployment benefits or Social Security), are all taken into consideration in determining financial need.

Transfer Students

Financial aid does not automatically follow the student who transfers to WVU Tech from another school. To continue receiving aid, the student should check with the Office of Financial Aid as soon as possible to find out what aid will be available. It is the transfer student's responsibility to:

- Submit an academic transcript from all previous schools attended.
- Apply anew through the WVU Tech Office of Financial Aid.
- Change the school code, OPEID, to WVU Tech - 003825 online at www.fafsa.ed.gov.
- Notify the state grant program of intent to transfer.

Notice of Financial Aid Award

An award letter will be sent after the student's financial aid is arranged by the Financial Aid Office. The student who wishes to decline any of the aid offered should do so within 30 days of receiving the award letter by either (1) replying on the award letter and returning the letter to the Office of Financial Aid; or (2) replying online by way of the MIX or STAR account.

When pending financial aid is not available at registration, the student should arrange to pay the costs and request reimbursement. Please note that, to comply with federal regulations, it may be necessary to reduce some financial awards so that financial aid will not exceed the actual cost of education at WVU Tech.

Disbursement

Student aid is disbursed each term unless otherwise stated by scholarship donors or other third parties. Disbursements are electronically sent to WVU Tech for payment of tuition, fees, room, and board. Any overpayment is disbursed to the student by eRefund the first week of classes.

Student Responsibilities

It is the student's responsibility to:

- Review and consider all information about the school's program before enrolling.
- Complete all application forms accurately and submit them on time to the right place.
- Accurately complete the application for student financial aid. (Errors can result in long delays in receiving financial aid. Intentional misreporting of information on an application for federal financial aid is a violation of law and considered a criminal offense that is subject to penalties under the U. S. Criminal Code.)
- Return all additional documentation, verification, corrections, and new information requested by either the Office of Financial Aid or the agency to which the application was submitted.
- Read, understand, and keep copies of all signed forms and relevant materials.
- Accept responsibility for all signed agreements.
- Notify the lender of any changes in name, address, or school status.
- Perform in a satisfactory manner the work agreed upon in accepting a College Work- Study award.
- Know and comply with the deadlines for application or reapplication for aid.
- Know and comply with the school's refund procedures.
- Know and comply with the satisfactory academic progress policy for financial aid.

5. Academic Programs

Undergraduate Education at WVU Tech

Goals of Undergraduate Education at WVU Tech

West Virginia University Institute of Technology is committed to providing a high-quality education to all students without regard to race or color, sex, sexual orientation, veteran status, religion, age, disability, national origin, creed, ancestry, or political affiliation.

Students at WVU Tech can expect to acquire:

- Basic foundation in liberal studies, with humanities, social sciences, natural sciences, and the arts integrated into degree programs, to help facilitate understanding of the world at large and competencies to deal with social, cultural, and technological change.
- Critical thinking and problem-solving skills; the ability to read and listen critically, ask appropriate questions, gather relevant information, and apply critical analysis to reach logical conclusions; the underpinnings of these skills are mathematical literacy and proficiency in oral and written communications.
- Proficiency in their major field of study, so that as graduates they are competitive in the job market or are prepared for graduate or professional schools.
- Knowledge, understanding, and appreciation of diversity (of languages, cultures, ideas, and peoples), desire to treat all persons in a manner consistent with social justice.
- Commitment to and practice of ethical behavior, responsible citizenship, and public service.

Official Program Designations

Degree Program: An area of study approved as such by WVU Institute of Technology and the WVU Board of Governors (e.g., Business Management, Civil Engineering, etc.).

Official Degree Designations: B.A. – Bachelor of Arts; B.S. - Bachelor of Science.

Major: Field of study within an approved degree program that has its own prescribed curriculum; a degree program may have more than one major.

Minor: Strategic work in an area of study; may not duplicate the major field of study; requirements for a minor are set by the granting academic unit; must include at least 15 credit hours of coursework, with a minimum of nine credit hours at the upper division level (course numbers 300 or above).

Area of Emphasis: A specific subject area of study which has limited course offerings within an approved degree program and major. Normally, a minimum of 12 credit hours and no more than 18 credit hours would be expected for an area of emphasis within a baccalaureate degree program.

Undergraduate Certificate Program: a coherent, specialized curriculum designed for students in search of a specific body of knowledge for personal/career development of

professional continuing education. Normally a minimum of 12 and no more than 21 credit hours constitute a certificate program at the baccalaureate level.

Academic Programs

College of Business, Humanities & Social Sciences

PROGRAM/MAJOR	DEGREE	MAJOR CODE
Accounting	B.S	008T
Athletic Coaching Education	B.S.	025T
Business Management	B.S.	010T
Career Technical Education	B.S.	011T
Criminal Justice	B.S.	012T
>Corrections Area of Emphasis		ET16
>Law Enforcement Area of Emphasis		ET17
Forensic Investigation	B.S.	051T
Health Services Administration	B.S.	013T
History and Government	B.A.	014T
Interdisciplinary Studies	B.A./B.S.	016T
Psychology	B.A.	022T
Public Service Administration	B.S.	023T
Regents Bachelor of Arts	B.A.	024T
>Business Area of Emphasis		01RT
>Creative Arts Area of Emphasis		02RT
>Cultural Studies Area of Emphasis		03RT
>Government Area of Emphasis		04RT
>Health Care Services Area of Emphasis		05RT
>Information Studies Area of Emphasis		06RT
>Labor Studies Area of Emphasis		07RT
>Sciences Area of Emphasis		08RT
>Social Sciences Area of Emphasis		09RT
>Organizational Management Area of Emphasis		10RT
>Marketing Area of Emphasis		11RT
Sport Management	B.S.	026T

Certificate Programs

Undergraduate Certificate Program in Fraud Examination	CM01

Non-Degree Programs

General Studies	002T
Military Science	
Pre-Law	044T
Pre-Nursing	020T
Pre-Med	047T
Pre-Pharmacy	048T

WVU School of Nursing

Nursing	BSN	019T

Leonard C. Nelson College of Engineering and Sciences

PROGRAM/MAJOR	DEGREE	MAJOR CODE
Aerospace Engineering (2+2 with WVU)		030T
Biology	B.S.	031T
Chemical Engineering	B.S.Ch.E.	032T
>Life Sciences Area of Emphasis		ET15
Chemistry	B.S.	033T
Civil Engineering	B.S.C.E.	034T
Computer Engineering	B.S.Cp.E.	035T
Computer Science	B.S.C.S.	036T
Electrical Engineering	B.S.E.E.	037T
>Computer Engineering Area of Emphasis		ET11
>Electrical Energy Systems Area of Emphasis		ET18
Electronic Engineering Technology	B.S.E.E.T.	038T
Engineering Technology	B.S.E.T.	039T
>Civil Emphasis		ET12
>Environmental Emphasis		ET13
>Mechanical Emphasis		ET14
Information Systems		050T
Industrial Technology	B.S.	040T
Mathematics	B.S.	041T
Mechanical Engineering	B.S.M.E.	042T

Non-Degree Programs

General Engineering		029T
Pre-Engineering		028T

Academic Minors

- Accounting UT01
- Biology UT02
- Business Administration UT03
- Chemistry UT04
- Computer Science UT24
- Criminal Justice UT21
- Economics UT05
- Finance UT06
- Fraud Examination UT07
- History and Government UT09
- Human Resources Administration UT10
- Marketing UT13
- Mathematics UT14
- Political Science UT16
- Professional Writing and Editing UT23
- Psychology UT17

- Risk and Insurance UT18
- Sociology UT19
- Sports Management UT20

Courses required to complete the minor are determined by the academic department in which the minor is offered and may not be taken on a pass/fail basis. Course substitutions may not be made without written approval of the academic department. A student may not complete a minor in his or her major field.

To assure that completion of the minor is appropriately recognized and posted to the transcript, the student should: (1) formally declare the intent to complete a minor by submitting an Academic Status Update for General Student form with the appropriate minor code entered (techregistrar.wvutech.edu/forms); (2) consult with the academic advisor to incorporate course requirements for the minor into schedule planning; and (3) when applying to graduate and receive the diploma, indicate the minor for which certification is requested.

Academic Advising

New students will be initially advised in the Student Success Center. As the student transitions into their chosen academic program, an advisor from the major department will be assigned to the student Advisors assist students in understanding major and university requirements; major matriculation processes; course registration planning and processes; prerequisites; the General Education Curriculum (GEC); probation and suspension; and academic options. WVU Tech students are required to meet with their academic advisors prior to registering for classes each term.

At the same time, though, students are also expected to become familiar with the *Undergraduate Catalog*, as it relates to their academic goals and standing. Students should be able to articulate the requirements of their major and of WVU Tech, the matriculation process for their major, plan for their scheduling and registration, use the WVU Tech website, and make full use of academic advising.

General Education Curriculum (GEC)

The Purpose of General Education

The academic programs of WVU Tech incorporate the General Education Curriculum (GEC) to help students reason clearly, communicate effectively, and contribute to society. The GEC is grounded in inquiry-based learning across the disciplines. In consultation with their advisors, students will design programs of study that integrate requirements of the major field(s) and also satisfy the nine objectives of the GEC.

Living successfully in an increasingly interdependent world calls for students to learn to interact constructively with people from different cultures, to understand viewpoints different from their own, and to identify and resolve issues of personal and professional ethics. Learning objectives of the GEC aim to help students become thoughtful participants in a democratic society and to achieve the intellectual integration and awareness needed to meet changes and challenges in their personal, social, and professional lives.

Policies Governing the General Education Curriculum

1. Students must complete between 41 and 43 credits to fulfill nine (9) GEC objectives.
2. Most courses can fulfill more than one GEC objective. The student will choose which one of those objectives a particular course will fulfill. One course cannot fulfill two objectives at the same time.
3. Unless disallowed by the major, courses satisfying GEC objectives may also satisfy course requirements for the major.
4. Students may fulfill up to three of the GEC objectives 2 through 9 (including 2A, 2B lab, 2B other, and 2C) with courses in one subject area (as defined by a common prefix, such as POLS or SOCA) and may fulfill GEC objectives 2 through 9 with up to two courses in each of any other subject areas. For example, a student might complete objectives 2 through 9 with three BIOL courses, one MATH, one CS, two HIST courses, two SPAN courses, one SOCA course, and one MUSC course.
5. No more than 3 credit hours of ROTC may count towards fulfillment of the GEC.
6. In addition to the nine objectives listed below, all students must successfully complete at least one course that requires a substantial writing component (officially designated as "W" courses) and in which the grade is partially determined by writing skills. English 102 must be completed before fulfilling the writing course requirement. A list of W courses follows the list of courses under the nine GEC objectives. The major program may require a specific W course.
7. Students working on a second bachelor's degree are exempt from the GEC requirements except for those courses designated as GEC that are required for the degree or are pre-requisites for courses required for the degree.
8. Transfer courses that do not have equivalents in the STAR course catalog, but meet the intent of a particular GEC area may be approved for GEC credit by the academic deans.
9. The transfer of certain GEC courses may be dictated by institutional transfer agreements or WV HEPC policies.

General Education Curriculum Objectives

1. Communication (6 credits) – Communicate effectively in English
2. Basic Mathematical Skills and Scientific Inquiry (13-14 credits) – Use quantitative and scientific knowledge effectively
3. The Past and Its Traditions (3 credits) – Apply knowledge, methods, and principles of inquiry to understanding the past
4. Issues of Contemporary Society (3-4 credits) - Apply knowledge, methods, and principles of inquiry to contemporary problems, ideas, and/or values
5. Artistic Expression (3 credits) – Apply methods and principles of critical inquiry to the analysis of literary or artistic expression
6. The Individual in Society (4 credits) – Develop an awareness of human experience, including both personal and social dimensions
7. American Culture (3 credits) – Develop knowledge critical to understand the issues that shape the culture of the United States
8. Western Culture (3 credits) – Analyze historical, cultural, and/or political issues of a Western nation in an international context
9. Non-Western Culture (3 credits) – Analyze historical, cultural, and/or political issues of a non-Western area or nation

Courses Fulfilling the GEC Objectives

Communication GEC 1

Successful completion of English 101 and 102. A component of Objective 1 requires the successful completion of a 'writing' (W) course, preferably in the major. Currently, the following courses have been approved for meeting this requirement: ENGL 305 and for Majors Only: NSG 333, HIST 484, ACE 330, SM 487, CHE 451

Basic Mathematical Skills and Scientific Inquiry GEC 2

Successful completion of one course in mathematics or statistics (3-4 credits), two in the natural or physical sciences with at least one having a laboratory requirement (7-8 credits), and one additional course from Group A, Group B, or Group C that satisfies the objective (3-4 credits).

Group A. Math and Statistics

MATH 121	MATH 155
MATH 123	MATH 156
MATH 126	MATH 218
MATH 128	STAT 211
MATH 150	ECON 225

Group B. Lab science courses

BIOL 111	PHYS 101
BIOL 112	PHYS 102
CHEM 111	PHYS 111
CHEM 112	PHYS 112
CHEM 115	PHSC 101
CHEM 116	PHSC 102
CHEM 117	
CHEM 118	

Group C. Additional classes

CS 101

The Past and Its Traditions GEC 3

ARHS 101	HIST 180
ENGL 225	HIST 203
ENGL 261	HIST 207
ENGL 262	HIST 261
ENGL 263	HIST 277
ENGL 272	HIST 354
HIST 152	MATH 218
HIST 153	POLS 102
HIST 179	POLS 220
	SM 275

Contemporary Society GEC 4

BIOL 122	MUSC 111
COMM 100	POLS 102
COMM 102	POLS 220
CS 101	POLS 260
ECON 201	PSYC 101
ECON 202	PSYC 241
ECON 301	PSYC 281
ECON 225	SEP 271
ECON 401	SEP 272
EDUC 200	SM 275
GEOG 108	SOCA 101
GEOG 240	SOCA 207
HIST 209	SOCA 221
MILS 101	SOCA 232
	SOCA 235
MILS 102	SPA 270
MILS 201	STAT 211
MILS 202	

Artistic Expression GEC 5

ARHS 101	ENGL 242
ENGL 131	ENGL 261
ENGL 132	ENGL 262
ENGL 225	ENGL 263
ENGL 232	ENGL 272
ENGL 233	MUSC 111
ENGL 234	MUSC 115
ENGL 235	SPAN 331
ENGL 241	WMST 225

The Individual in Society GEC 6

Successful completion of WVUe 191 or equivalent course (1 credit) Students transferring to WVU Tech with 29+ hours for whom WVUe 191 or equivalent course requirement has been waived, may fulfill GEC 6 with 3 credits.

BIOL 122	MILS 202
COMM 100	PSYC 101
COMM 102	PSYC 241
EDUC 200	PSYC 281
MILS 101	SEP 272
MILS 102	SOCA 221
MILS 201	SPA 270

American Culture GEC 7

ENGL 241	HIST 354
ENGL 242	MUSC 115
ENGL 258	SEP 271
GEOG 240	SOCA 101
HIST 152	SOCA 207
HIST 153	SOCA 232
HIST 261	SOCA 235
	WMST 225

Western Culture GEC 8

ECON 201	GEOG 108
ECON 202	JRL 101
	POLS 103
ECON 301	POLS 260
HIST 203	SOCA 105
HIST 207	SPAN 101
HIST 209	SPAN 102
HIST 277	SPAN 203
GEOG 102	SPAN 204

Non-Western Culture GEC 9

GEOG 102	SPAN 101
HIST 179	SPAN 102
HIST 180	SPAN 203
JRL 101	SPAN 204
POLS 103	SPAN 331
SOCA 105	

Academic Advancement

College Level Examination Program (CLEP)

Students with significant life experience may earn up to 35 hours of general education or elective credit for this experience through the College Level Examination Program (CLEP) of the College Entrance Examination Board (CEEB). Although the CLEP program was designed primarily for adults, exceptionally well-qualified high school seniors are eligible to utilize the CLEP program as well. The following table lists the minimum CLEP test scores required for equivalency to WVU Tech courses.

A student with at least one year of active military service may receive college-level credit by submitting a copy of his or her DD214 or a SMART or AARTS transcript.

COLLEGE LEVEL EXAMINATION PROGRAM (CLEP)

General Examination	WVU Tech Equivalent	Minimum Score Required
English Composition (with Essay)	ENGL 101 (3 hr.)	59
Subject Tests		
American Literature	ENGL 241 (3 hr.)	59
Analysis & Interpretation of Literature	ENGL 131 (3 hr.)	59
College Composition	No Credit	
English Literature	ENGL 262 (3 hr.)	60
College Spanish (levels 1 and 2)	SPAN 101 and 102 (6 hr.)	50
	SPAN 203 and 204 (6 hr.)	63
American Government	POLS 102 (3 hr.)	50
American History I	HIST 152 (3 hr.)	49
American History II	HIST 153 (3 hr.)	49
Western Civilization I	HIST 101 (3 hr.)	50

Western Civilization II	HIST 102 (3 hr.)	50
General Psychology	PSYC 101 (3 hr.)	50
Introduction to Macroeconomics	ECON 202 (3 hr.)	50
Introduction to Microeconomics	ECON 201 (3 hr.)	50
Intro. Sociology	SOCA 101 (3 hr.)	50
College Math	MATH 121 (3 hr.)	50
College Algebra	MATH 126 (3 hr.)	48
Trigonometry	MATH 128 (3 hr.)	54
College Algebra/Trigonometry	MATH 129 (4 hr.)	50
Calculus with Elementary Functions	MATH 155 (4 hr.)	49
General Biology	BIOL 101 and 102 (6 hr.) (no credit for the labs)	49
General Chemistry	CHEM 115 (4 hr.)	70
Computers & Data Processing	To be determined by the dept.	49
Introduction to Management	BCOR 370 (3 hr.)	50
Introduction to Accounting	ACCT 201 and 202 (6 hr.)	54
Introduction to Business Law	BCOR 320 (3 hr.)	51

Credit by Examination

A current student with sufficient proficiency in material covered by a specific course may apply for credit for this course by examination. A student who desires to obtain credit by examination must petition the chair of the program that provides the course to be allowed to attempt an examination for credit.

The chair of the concerned department shall determine the general proficiency of the student by preliminary examination. Assuming strong performance by the student, the chair may recommend to the committee on Classification and Grades that the student be given the opportunity to attempt examination for credit. If approved, the student will then sit for a comprehensive departmental examination that is administered by an examining board of one or more faculty, who are appointed by the department in which credit is being sought. Credit will be granted if a minimum grade of "C" is attained. The test and results shall be presented to the Classification and Grades Committee for final review (a fee of $20 per credit hour will be assessed).

A student who fails a departmental examination may not apply to retake it. Nor may a student request an examination on the basis of an audit course or one in which a grade less than "C" was earned.

Academic Credit for Military Training

Academic credit may be granted to veterans or National Guard or Reserve members for successful completion of formal service-school training programs on the basis of evaluations made by the Commission on Accreditation of Service Experiences and listed in the "Guide to the Evaluation of Educational Experiences in the Armed Services."

Students who apply for such credit are required to submit official records such as the DD-214, transcript of in-service training, certificates or diplomas, or in-service training certified on DD Form 295 (Application for Evaluation of Educational Experiences during Military Service). Credit for college-level USAFI courses will be granted in accordance with recommendations of the Commission on Accreditation of Service Experiences.

Classification of Students by Class Rank

Class rank is based on the total number of credit hours shown on the official record in STAR at the beginning of each term. Classifications are as follows:

Freshman	1-28 hours, inclusive
Sophomore	29-58 hours, inclusive
Junior	59-88 hours, inclusive
Senior	89 or more credit hours

Credit Hours

Academic advancement is measured by credit hours. Earning one credit hour generally means attending a 50-minute lecture class (one clock hour) each week of the full term. Laboratory credit of one credit hour generally means laboratory work of two to three clock hours per week. Course descriptions in the catalog show the number of credit hours for the course and the number of hours of lecture and/or laboratory per week. Credit hours for web-based courses are determined by comparison of the amount of material presented to that covered in an equivalent face-to-face course.

Required Credits

WVUe 191 First-Year Seminar, is required of all first-time, full-time freshman students and full-time transfer students coming in with fewer than 29 credit hours. This course is designed to assist new students in transitioning smoothly to the Tech community. Students who do not pass this course must continue to re-enroll until they pass the course.

Each degree program specifies its unique combination of required courses and electives. The pattern sheets that appear later in this catalog delineate these individual sets of requirements. All WVU Tech baccalaureate level programs must require at least 120 credit hours of course work.

Credit-Hour Load

The maximum credit-hour load for fall and spring terms is 20 credit hours, and the maximum allowable for summer is 12. Exceptions may be permitted after consultation with the student's advisor. Registration for loads in excess of these maximums must be accompanied by a properly executed waiver form signed by the student's advisor, department chair, and dean of the college.

Summer Term

WVU Tech has one summer term, which begins mid-May and ends in early August. Requirements for admission and work performance for the summer term are the same as for fall and spring terms. Courses are offered in a variety of time frames, e.g., one week, three week, six week, eight week, and 12 week. Summer offerings vary from year to year. For complete information concerning course offerings during the summer term, please visit courses.wvu.edu.

Class Attendance

At WVU Tech, class attendance contributes significantly to academic success. Students who attend classes regularly tend to earn higher grades and have higher passing rates in courses. Excessive absences may jeopardize students' grades or even their ability

to continue in their courses. There is a strong correlation between regular class attendance and academic success. Faculty are strongly encouraged to require attendance in all 100-level classes.

Instructors must set attendance policies that are appropriate for the goals and instructional strategies of their courses. Instructors may include attendance records in determining the final course grade. All attendance policies that affect students' grades must be announced in writing within the first week of class. Moreover, instructors are responsible for keeping accurate enrollment records, and for keeping accurate attendance records when attendance is used in grading. Attendance policies thought to violate the statement on student attendance should first be discussed with the instructor, then with the department chair, and finally the college dean, if necessary.

Students who are absent from class for any reason are responsible for all missed work and for contacting their instructors promptly, unless the instructors' policies require otherwise. However, instructors cannot require documentation of student illness from any medical provider as part of an attendance policy, since medical conditions are confidential and frequently not verifiable.

Institutional excuses for college-sponsored activities are granted by the academic deans and Associate Campus Provost at WVU Tech, and are to be honored by each instructor. These excuses are defined for a particular period of time, missed work is to be made up in a timely manner, and the student is expected to be proactive in communicating with the instructor when missing class with an excused absence. Students absent from regularly scheduled examinations because of authorized University activities will have the opportunity to take them at an alternate time. Such make-up examinations should be of comparable difficulty to the original examination.

Instructors are urged not to schedule examinations or field trips on "Days of Special Concern" that are identified in the university and academic calendars.

Final Examinations

The last week of each regular term in the academic year is designated as finals week. Final examinations for the summer term are given on the last day of classes. Students who take one section of a multi-section course may be required to take a departmental final examination, given during the regular final examination period. All final examinations, unless otherwise approved by the Associate Provost, must be given according to the official final examination schedule provided by the Academic Affairs Office. The only tests permitted during the week of classes preceding finals are final examinations for evening classes (classes meeting at 6 p.m. or later or classes meeting at 4 p.m. or later if the class meets once a week), practical laboratory tests, make-up examinations, and regularly scheduled short quizzes. If a student has more than three final examinations in one day, the student may make arrangements to take one of the examinations on a different day. Finals are held in classrooms regularly scheduled unless students are otherwise notified.

Last Week of Classes

Practical laboratory tests, make-up examinations, and regularly scheduled short quizzes are the only tests permitted for day classes during the week of classes preceding finals week unless the faculty member petitions the Associate Provost and the petition is approved by the beginning of the second week of the semester in which the final exam is to be given.

Auditors

An auditor registers for a course and pays full fees for it, but an auditor cannot receive academic credit for the course. The student who wishes credit for an audited course must let one semester pass before enrolling in it for credit.
The student may change his or her status from audit to grade or grade to audit only during the registration period. Attendance requirements for auditors are determined by the instructor of the course. The instructor may direct the Registrar to remove an auditor from a class list or grade report if attendance requirements are not met.

Visiting Students

Full-time WVU Tech students and those employed by the University (administration, faculty, or other regular University employees) may attend classes as visitors. Visiting students must have permission in writing from their advisor and/or supervisor, and all visiting students must have permission from the instructor of the course. A visitor will not receive credit and may not apply for credit by examination in a visited class.

Transcripts

Students desiring official copies of their college records should make requests to the Registrar and Records Office at least one week before the transcripts are needed. Two weeks may be necessary at the beginning or end of a term. The first transcript is furnished without charge, but a fee must accompany each additional request. All financial obligations to the college must be satisfied before a transcript will be issued. Unofficial transcripts may be obtained be printing them from the STAR transcript page.

Change of Schedule and Course Withdrawals

Changes in a student's schedule will be processed when a Change in Schedule form has been properly signed and returned to the Registrar. No additions to a student's schedule may be made after the late enrollment period without the approval of an academic dean. All withdrawals after the first week of classes must be approved by an advisor.

A student must have satisfactorily completed the English sequence by the end of three semesters. A student, who has not passed ENGL-102, must take the proper English sequence consecutively and cannot withdraw from the course.

Students enrolled in English courses ENGL 90 or ENGL 91 may not withdraw from these courses. Credit for these courses may not be counted toward a degree program.

A student has two weeks after the day designated as midterm to withdraw from a course with a "W" grade. This date is given in the academic calendar. Note: Different dates will be in effect for part-of-term courses, e.g. eight-week or five-week courses. In an emergency or when extenuating circumstances justify an exception, an academic officer may recommend in writing that the student receive a grade of "W".

Students may withdraw from the institution almost as late as the last day of classes. The official date will be shown in the academic calendar. A complete withdrawal is initiated by completing a Withdrawal Form, which is available from the Registration and Records Office.

During the summer, the deadline for withdrawal with a "W" is approximately three weeks in a six-week session and approximately seven weeks in a twelve-week session. These dates are given in the academic calendar.

Changing Majors

A student indicates a major at the time of application for admission and remains in that major until graduation or until receiving approval to change to another major. Such approval is granted when the student completes an Academic Status Update form; available in the Registration and Records Office. Changes in major must be processed by the end of the first week of each term in order to be in effect for the current term.

Some majors – pre-professional, pre-engineering, general engineering – are not associated with degrees. It will be necessary for any student admitted under one of these majors to change to a degree program once they have earned 30 credit hours of college-level credit.

Academic Progress and Grading

Courses

Most courses taught at WVU Tech extend over one full term, although there are some courses that are exceptions to this norm (e.g., four-week, eight-week, etc.). Courses are considered successfully completed and credit for successful completion is awarded only when the student attends a class over its entire scheduled time frame and submits the necessary work to meet all requirements. Any exceptions to this practice must be approved by the Classification and Grades Committee. Courses taught during the summer term or as part-of-term courses have the same credit value as their counterpart courses that are taught during fall and spring terms. Web courses also earn the same credit as their counterpart courses that are offered in a face-to-face mode.

Evaluation of Student Progress

WVU Tech discourages evaluation by final examination only; rather student progress is measured and evaluated by a variety of methods that are consistent with the objectives of the course. The student is responsible for all materials presented or assigned in scheduled instructional sections. Students who do not complete all assigned work may earn an incomplete "I" or a failing grade "F". If the grade is incomplete "I", the student must submit a written contract to the instructor that is built upon a time line to finish the course within the next full term. A student has one regular term (excludes summer) in which to complete a course in which an "I" grade was awarded. Otherwise, the "I" grade will automatically be converted into an "F" grade.

Grading System

A excellent (given only to students of superior ability and attainment)
B good (given only to students who are well above average, but not in the highest group)

C	fair (average for undergraduate students)
D	poor but passing (cannot be counted for graduate credit)
F	failure
I	incomplete
W	withdrawal from a course before the date specified in the University calendar
P	pass (see Pass/Fail Grading below)
X	auditor, no grade and no credit
CR	credit but no grade
S	satisfactory
U	unsatisfactory (equivalent to F)
IF	incomplete grade not removed by next regular term (computed as an F)
UF	unforgivable F (not eligible for D/F repeat policy)

Pass/Fail Grading

Pass/fail grading encourages students to take elective courses not related to their degree concentrations. Pass/fail grading also facilitates grading in competency-based courses that may be an integral part of an academic program.

Student Option **-** Any full-time student who has completed 15 hours or more and who has maintained a 2.0 grade point average may take a maximum of four hours each semester or summer term on a pass/fail basis. Any course taken on a pass/fail basis must be a free elective. Students are limited to a total of 18 hours of pass/fail credit in their collegiate career. Unless otherwise indicated, courses in the major, courses in other subjects that are required by the major, and courses taken to satisfy university, college, or departmental requirements are excluded from pass/fail. For example, courses elected to satisfy the General Education Curriculum (GEC) or foreign language requirements may not be taken for pass/fail grading.

A course taken on a pass/fail basis is graded as a graded course. The grade of "P" does not affect grade point average. However, any "F" grade affects a student's grade point average regardless of whether it is a regular grade or a pass/fail grade.

A student chooses the option of pass/fail grading for a course during the registration period. Once the registration period has ended, he or she may not change the grade status in the course.

College or School Option - A department or unit may designate any performance- or competency-based course as exclusively pass/fail. To institute this, the college or school must have the approval of the Faculty Senate. Courses offered only as pass/fail are not included in the maximum of 18 hours that may be freely elected as pass/fail under the student option.

Grade Points

Each letter grade has a numeric value. Grade points are based on this number value and the credit-hour value of the course.

A	B	C	D	F	I	U
4	3	2	1	0	0	0

The grade point average is computed on all work for which a student registers, with the following exceptions:

- Courses with a grade of "W", "P", "S", and "X" carry no grade value. The grade of incomplete "I" initially carries no grade value.
- The grade of "I" is given when the instructor of the course believes that the work is unavoidably incomplete or that an additional examination is justified. There must be a written contract between the student and instructor, including a timeline for completion of the work. To remove the grade of I, a student does not register for the course again; instead, he or she arranges to submit incomplete or supplemental work to the original instructor of the course.

When a student receives the grade of "I" and the incomplete grade is later removed, the grade point average is calculated on the basis of the new grade. If the "I" grade is not removed within the next full semester enrolled, the grade is treated as an "F" (failure). The Classification and Grades Committee may allow a student to postpone removal of the "I" grade if the student can justify a delay.

Grade Point Average (GPA) Calculations

All academic programs have baseline standards of scholastic quality that must be met or exceeded. Grade Point Average (GPA) is computed on grades earned in courses taken at WVU Tech and transfer institutions. GPA is based on all work for which a student received a letter grade other than "W", "WU", and "P".

To calculate grade point average:

1. Multiply the number of credit hours per course by the numeric value of its letter grade to obtain the number of grade points earned for each course.
2. Add all of the grade points earned for all of the courses completed.
3. Divide the total grade points earned by the total number of credit hours for all courses whose grades carry a numeric grade value.

The following example shows how to do it. Assume 16 credit hours completed that earned the following grades:

English 101	B	Mathematics 126	A
Geology 101	C	Political Science 101	B
Spanish 101	D	Psychology 201	P

Course	**Credits**	**Grade**	**Value**	**Credits x Value**	**Grade Points Earned**
English 101	3	B	3	3 x 3 =	9
Geology 101	3	C	2	3 x 2 =	6
Spanish 101	3	D	1	3 x 1 =	3
Mathematics 126	3	A	4	3 x 4 =	12
Political Sci. 101	3	B	3	3 x 3 =	9
Psychology 201	1	P	0	1 x 0 =	0
			15		39

GPA = 39 divided by 15, for a grade point average of 2.6.

D/F Repeat Policy

WVU Tech has a D/F repeat policy for undergraduate students who have not received the first baccalaureate degree. If a student earns a "D" or "F" in a course at WVU Tech or any school in the WV State System and the course is taken no later than the semester or summer term in which the student completes the sixtieth hour (includes any class in which

the student earns a grade as well as all transfer classes), the student may "D/F repeat" that course. The course can be repeated only at WVU Tech or another campus of West Virginia University. Students have only one opportunity to improve their original grades under the D/F repeat policy. The new grade becomes the grade that counts toward the student's cumulative GPA and credit hours for graduation, even if the repeated course grade is lower than the original grade in the course. The D/F repeat policy will be enacted any time an eligible course is repeated.

When a course is D/F repeated, the following procedure occurs:

1. The original grade is disregarded for the purpose of determining the overall GPA, it is marked as excluded (E) in the semester that the student originally took the course.
2. The original grade is not deleted from the student's permanent record.
3. The second grade is entered on the student's transcript and marked as included (I) in the semester that the course was repeated.
4. Grades of Unforgivable "F" (UF) are not eligible for D/F Repeat. Such a failure is indicated on the student's permanent record by a "UF" and is calculated in the GPA.

Repeating Classes

For courses repeated where the original grade was higher than a "D" the first attempt of a course will be included in GPA (or quality) hours, but not in earned hours (or degree hours). The second attempt of the course will be included both in GPA (quality) and earned (degree) hours. Both attempts of the course will be designated appropriately on the transcript as repeated. Additional attempts of the course will be treated in a similar fashion. The earliest attempt(s) will be removed from earned or degree hours. Only the final attempt will be included in earned or degree hours. All attempts will remain in quality or GPA hours. This rule will also apply in cases where a course that was eligible for the D/F repeat rule has been repeated more than once.

Grade Periods

Mid-semester and final grades are submitted through the STAR grade entry system each semester. The mid-term grades are progress reports only. Students have access to mid-term and final grades through the MIX/STAR system. Grades are not mailed. A student having an error in a grade received or a grade omitted should contact the instructor immediately. An instructor who makes an error in reporting a grade may request a grade change by completing a form provided by the Registrar. All corrections in grades must be approved by the department chair, dean of the school, and the Classification and Grades Committee.

Grade Appeals

If a student wishes to dispute an hourly examination grade or any grade of importance, the student must see the faculty member involved by the next class meeting after receipt of the grade. If the dispute is over a final examination grade or a final grade, the student must see the faculty member within two weeks after the next term begins.

If not satisfied with the faculty member's decision, the student is directed to make an appeal to the appropriate department/division chair within one week.

If still dissatisfied, the student is directed to make an appeal to the appropriate academic dean, stating the grievance in writing, within two weeks after the meeting with

the department/division chair. The written appeal by the student to the academic dean must include a statement of the facts and evidence to be presented by the student in support of the charges made with sufficient clarity to reasonably disclose the claim for a grade change.

Within two weeks after receiving the grievances in writing, the academic dean will bring together the student and the faculty member involved, and the faculty member's department chair/division director for a hearing of appeal. A student who desires may choose a faculty member or another student as the student's representative at the hearing.

If not satisfied with the results of the hearing, the student may, within one week, appeal the case in writing to the chair of the Academic Appeals Committee.

The Academic Appeals Committee shall consist of five faculty members and two student members determined in accordance with the respective constitutions of the Faculty Assembly and the Student Government Association. The Committee will elect its own chair.

Once a written appeal is made to the Committee by a student, the Committee will appoint a faculty member from the same area of study, or from an associated field in which the dispute is involved. The faculty member chosen by the Committee from the area of dispute will function in the same mode as any other member of the Committee for purposes of hearing the particular appeal case and is neither an advocate for the student or the faculty member involved in the appeal. The purpose for the selection is to insure that someone with expertise in the subject area of dispute will be a member of the Committee.

A member of the Academic Appeals Committee involved in such a dispute will be disqualified and the Committee will appoint a replacement.

Members of the Committee have the authority to determine whether or not an academic evaluation was "prejudicial, capricious, arbitrary, or discriminatory" and to recommend a change in grade. However, only the faculty members of the Committee have the authority to determine what the new grade shall be. The Committee will direct the Registrar to make the appropriate amendment(s) to the academic record of the student.

Summer Grade Appeal Policy

Any student whose May graduation was delayed by a grade of "D" or "F" in a required course may request a special summer procedure be instituted for grade appeals. If the faculty member is not on campus, the student may start the appeal process by notifying the department chair or dean within three (3) weeks of the posting date of final grades. For summer grade appeals, the Associate Campus Provost, or his/her designee is empowered to appoint summer replacements for faculty representatives on the committee who are not available. The Dean of Students will appoint student replacements as needed. Other than exceptions noted above, all other portions of the regular Grade Appeals Policy are in effect.

Withdrawal from Classes

Deadlines

Until the Friday of the tenth week of class (or Friday of the fourth week in a six-week summer course, or Friday of the second week of a three-week summer course), students may withdraw from individual courses. Deadlines are listed each semester on the academic calendar provided on the *Current Students* web page: www.wvutech.edu/current_students. If a student follows all established University procedures and withdraws by the published deadline, he or she will receive a "W" on the transcript. Grade point averages are not

affected in any way by this mark; however, the ratio of courses attempted versus courses completed may affect financial aid eligibility.

Procedures

Before withdrawing from individual classes, students should consult an advisor to determine if:

- The course load would be reduced below the minimal number of hours required to qualify for financial aid, housing, varsity athletic competition, or international full- time student status.
- The courses to be dropped are required to fulfill academic probationary conditions.
- The courses from which the student wants to withdraw might be co-requisite with other courses he or she is taking, or prerequisite to other courses required for the next term.

Withdrawal from All Classes for the Term

A student may completely withdraw from the institution any time before the last day designated for complete withdrawal from the university.

- Students who decide to leave WVU Tech during a term should withdraw from all classes and must do so in accordance with established University policy. Students are responsible for all financial obligations and for following established procedures. This includes the submission of appropriate information and signature of forms in person at the Office of the Registrar.
- Students who are unable to withdraw in person because of illness, accident, or other valid reasons must send notification of their request to withdraw along with all appropriate required information to the Office of the Registrar. The request to withdraw must be verified in writing along with a signature.
- If a student is an international student attending WVU Tech on a visa, the student must report to the Office of the Registrar.
- With the help of their academic advisors, students are responsible for determining how withdrawal from the institution may affect their future status, including such aspects as financial aid suspension for failure to make progress toward a degree, or violation of established eligibility for scholarships, fellowships, or financial aid.
- Students called to active military duty during any given semester have specific options regarding the credit hours.

Financial Aid Refund and Repayment Policy

Federal regulations require that WVU Institute of Technology recalculate eligibility for financial assistance for students who completely withdraw, drop out, or are dismissed before completing the enrollment period. Students who receive all unsatisfactory grades (defined as at least one “F” and no passing grades) at the end of the grading period will be considered as unofficially withdrawn at the semester mid-point unless documentation is available that demonstrates continued class participation. Application of this policy may result in the necessity for a student to return financial aid funds to various Title IV federal aid programs including Federal Pell Grant, Federal SEOG, Federal Perkins Loan, and William D. Ford Federal Direct Student and PLUS loans.

A student earns Title IV federal aid based upon the length of time the student remains enrolled during the enrollment period. Students who withdraw on or before

completing more than 60 percent of the semester may be required to return a portion of federal financial assistance. The determination of 60 percent of the term is computed by dividing the total number of calendar days in the term into the number of calendar days completed as of the date of student withdrawal. Scheduled breaks of five consecutive days or more are excluded. The percentage of Title IV assistance which the student has earned is equal to this percentage of the term completed. If the withdrawal occurs after more than 60 percent of the term is completed, the percentage earned is considered to be 100 percent.

If more Title IV aid was disbursed than was earned by the student, WVU Tech is required to return the lesser of (1) the unearned aid percentage of institutional charges or (2) the unearned aid percentage applied to the total Title IV aid received. The student must return unearned aid for which s/he is responsible after subtracting the amount the school will return. Funds are returned in the following priority:

1. Unsubsidized Federal Direct Loan
2. Subsidized Federal Direct Loan
3. Federal Perkins Loan 0
4. Federal Graduate PLUS Loan
5. Federal PLUS Loan
6. Federal Pell Grant
7. Federal SMART Grant
8. Federal SEOG
9. Other Title IV assistance
10. Other federal, state, private, or institutional aid
11. The student

If less Title IV aid was disbursed that was earned by the student, the student is entitled to a post-withdrawal disbursement within 30 days of withdrawal.

The return of financial aid may result in unpaid charges to WVU Tech for tuition/fees and room/board. WVU Tech will bill the student for any balance due. Students who owe a repayment to any federal financial aid program are no longer eligible for financial aid at any post-secondary institution. Eligibility may be regained after repayment is satisfied.

Probation and Suspension

Any student who's overall or WVU Tech GPA falls below 2.0 will be placed on academic probation during the semester immediately following the drop in GPA. Transfer students who do not have a GPA of 2.0 or better may be admitted conditionally, and will be placed on a probationary status. The student is removed from probation when the overall and WVU Tech GPAs return to levels of 2.0 or greater.

A student who fails to improve their GPA while under academic probation becomes subject to suspension. A suspension means that the student may not enroll in courses at Tech, and that the student is not in good academic standing. Most institutions will not admit a student in this status. Courses taken at another institution while the student is suspended may not be transferred to WVU Tech except by petition to the Classification and Grades Committee.

A first-level suspension is given if a student is in probationary status and fails to earn at least a 2.0 GPA for any semester or summer term. A first-level suspension will require the student to wait for one semester before being readmitted. A first-level suspension may be waived by the dean of the college in which the student was enrolled.

A second-level suspension is given if a student is in probationary status, has returned from a first-level suspension, and fails to earn at least a 2.0 GPA for any semester or summer term. A second-level suspension requires the student to wait for at least one year before being readmitted. A second-level suspension cannot be waived.

A third-level suspension is given if the student is in probationary status, has returned from a second-level suspension, and fails to earn at least a 2.0 GPA for any semester or summer term. A third-level suspension requires the student to wait for at least four years before being readmitted. A third-level suspension cannot be waived. A student who returns from a third-level suspension will be subject to another four-year suspension if they do not successfully remove themselves from probationary status.

Prior probationary history will be disregarded should a student who has successfully removed themselves from academic probation again fall into probationary status. Students have the right to appeal suspensions of any level to the Classification and Grades Committee. The burden rests with the student to prove extenuating circumstances that would justify the lifting of a suspension.

While a student is in a probationary status they may be enrolled for no more than 14 credit hours in a regular semester, may not participate in more than one extracurricular activity in a semester, and may not serve in the Student Government Association.

Academic Misconduct

Academic Dishonesty

Honesty among the members of any group is required for the smooth functioning of the group. In college, new experiences, awareness, and the academic life with its freedoms, frequently put individual honesty to the test. Without honesty, both individual and institutional goals would be compromised. Therefore, academic dishonesty will not be tolerated.

It is presumed that the student has gained a basic understanding of the meaning of the term dishonesty prior to entering college. Academic dishonesty includes any deceitful act committed to affect any student's scholastic standing. All parties knowingly associated with the act are guilty of dishonesty whether or not they directly benefit from the act.

Examples of academic dishonesty include, but are not limited to: (1) plagiarism of an item submitted for a grade such as a question answer or an exam, quiz, or laboratory report, a submitted paper, experimental data, a computer program, or homework; (2) falsifying experimental data; (3) using work accomplished by another person; (4) assisting another person to cheat; (5) falsifying records; and (6) improperly accessing computer stored information.

While this policy will apply for all courses in the institution, each faculty member may establish a policy statement, within the framework of this policy, on cheating and resulting penalties for their courses, to be included in the course syllabus. It is a faculty and student responsibility to prevent academic dishonesty.

When academic dishonesty is suspected, the faculty member must discuss the matter with the student, normally within five business days of determining that an instance of dishonesty has occurred. A penalty should be assessed only when the evidence justifies such action or where the student provides a written admission of guilt. Possible penalties the faculty member may utilize range from failure on the item in question to dismissal from the course with a failing grade. In the event of dismissal from the course for reasons of academic dishonesty, a student may not withdraw to avoid a failing grade.

Process to Initiate a Charge of Academic Dishonesty

To initiate and process a charge of academic dishonesty, including plagiarism, cheating, and academic fraud, and/or to begin the process of issuing an Unforgiveable F, the instructor must do the following:

1) **Notify the student in writing** of the charge and the penalty and schedule a conference within five academic days of discovering the infraction.
2) **Meet with the student** to discuss the issue, to review all relevant materials, and to complete the Notification of Academic Misconduct (NAM) form.
   If the student accepts responsibility for both the charge and the sanctions, he or she signs the NAM, and the case is closed. Within five business days of resolution of the case, faculty should make three copies of the NAM form: one for the student, one for faculty records, and one for the Associate Dean of Student Affairs (322 Old Main).
   If the student does not accept responsibility as charged, he or she may appeal to the chair of the department. If the student and chair reach a resolution, the chair should make three copies of the NAM form: one for the student, one for departmental records, and one for the Associate Dean of Student Affairs (322 Old Main). These copies should be distributed within five academic days of resolution of the case.
   If the student and the chair do not reach a resolution, the student may appeal to the Associate Dean of Student Affairs (322 Old Main), who will refer the appeal to the Student Conduct Board. This appeal must be initiated within five academic days of the student's meeting with the chair.
3) **If the student appeals to the Student Conduct Board**, a panel of three faculty and two students or any odd number with faculty comprising the majority will be convened, the case will be examined, and a decision will be reached.
4) **If the student disagrees with the decision of the Student Conduct Board**, he or she may appeal to the Associate Campus Provost, whose decision is final.

Graduation

Requirements for Graduation

A student becomes eligible to graduate when he or she completes the requirements of the University and major degree program according to the catalog in effect at the time the student first entered WVU Tech. With the consent of the student's advisor and department chair, a student may choose to meet the conditions published in a later catalog. However, degree programs reserve the right to change requirements for graduation. If such changes are made, they may, at the discretion of the program, be applied to students already enrolled, provided the new requirements do not impose extension of time for completion of a degree.

As a general rule, a student has seven years to complete degree requirements in a baccalaureate program. The student may become subject to later requirements if this period is exceeded. If the student interrupts their program for a period greater than one academic year, they will be subject to the requirements of the catalog that is in effect when they return. The student may petition the Classification and Grades Committee to continue under their original catalog in that event. The student has the option to follow a program as outlined in any catalog issued after their initial enrollment or readmission, but they must satisfy all requirements of the program as outlined in the selected catalog. Combining and/or selecting program requirements from several catalogs is not permitted.

Degree requirements vary from program to program. The minimum semester hours for a B.A. or a B.S. degree is 120 semester hours. The student is responsible for completing all course requirements including any required core requirements listed in the pattern sheet and should schedule a graduation check with the Registrar during **both** of the last **two** semesters preceding graduation. If a substitution or waiver is approved by the advisor and dean, a signed waiver form must be on file in the Office of the Registrar. Candidates for graduation taking courses under the transient student status must see that a transcript is received in the Office of the Registrar no later than ten (10) calendar days after the Commencement date.

Graduation requirements for **baccalaureate degrees** from WVU Tech include the following:

1. Thirty of the last 36 hours taken in residence at WVU Tech. (exception will be made for students admitted to medical, dental, and law schools prior to meeting degree requirements provided they have completed a minimum of 92 undergraduate hours at Tech.
2. A minimum of 40 semester hours in upper-division courses.
3. Minimum 2.0 average in all courses attempted.
4. Minimum 2.0 average in all courses attempted at WVU Tech
5. Minimum 2.0 average in all courses attempted at WVU Tech, in major and minor, as indicated below:
    a. Engineering professional courses - all biology (for Chemical Engineering), chemistry, engineering, math, and physics
    b. Engineering Technology/Industrial Technology professional courses - all engineering technology, industrial technology, restricted technical electives, and required math and science
    c. Business and Accounting professional courses - all business, accounting, finance and economics. All Business Management and Accounting majors must sit for the Business Program Assessment Examination
    d. Biology professional courses - all science, math (including statistics), nursing, and psychology
    e. All other Baccalaureate Majors and Minors – all courses in major area and all courses within any elected minor area

Students admitted to professional schools may apply for graduation after successful completion of their first year providing that all other degree requirements have been met except for their major. A minimum of 120 semester hours, including professional school, is required.

Application for Graduation

A formal application for graduation must be filed in the Office of the Registrar by the date listed in the academic calendar. A degree will not be awarded until an application is filed. The application should specify all degrees, minors, and areas of emphasis that the applicant expects to be awarded.

Graduation with Honors

WVU Tech recognizes distinguished academic achievement by awarding degrees cum laude, magna cum laude, and summa cum laude. This distinction can be awarded on initial or second baccalaureates and specified entry-level professional degrees. All candidates for a baccalaureate with a GPA of 3.8 or higher graduate summa cum laude. Those with a grade

point average of less than 3.8, but equal to or above 3.6, graduate magna cum laude. Those with a GPA of less than 3.6, but equal to or above 3.4, graduate cum laude.

The grade point average for honors consideration for a baccalaureate is based on baccalaureate-level college work attempted through the final semester. This calculation includes baccalaureate-level college work attempted at institutions accredited by regional accreditors in the United States. Credit hours earned with a grade of P or S are not considered in the determination. Grades of F, however, are computed as hours attempted. The grade point average through the penultimate semester will be used for notations in the commencement programs. Students must meet residency requirements within the WVU system to be considered for graduation with honors.

The GPA for honors consideration for entry-level professional degrees is based on baccalaureate-level and professional-level work attempted through the last semester. This calculation includes baccalaureate-level and professional-level college work attempted at all regionally accredited higher education institutions attended. Credit hours earned with a grade of P or S are not considered in the determination.

Students entering and completing a second baccalaureate program following completion of the initial degree are eligible to receive the honors designation. Grade point averages for graduation with honors on second baccalaureates shall be computed on all baccalaureate-level work, excluding credit earned with a P or S. This includes work completed for the first degree as well.

Dual Degrees/Double Majors

The dual degree is the concurrent awarding of two distinct baccalaureate degrees (i.e. B.A., B.S., B.S.E.,etc.). Students pursuing two majors in different degree programs must be admitted into each degree program and fulfill all requirements for each degree. Students should pay particular attention to GEC requirements for each degree. Simultaneous completion of dual baccalaureate degrees requires students to complete a minimum of thirty hours beyond their primary degree. For a degree program that requires a minimum of 120 credit hours, students must complete a minimum of 150 credit hours to earn both degrees.

The double major is the awarding of one degree with two majors (e.g. a student who completes majors in English and history earns one B.A. degree). The completion of double or multiple majors must lead to the same degree and can only be achieved simultaneously. Students must be accepted into each major and fulfill all requirements of each major in addition to satisfying all institutional requirements. This may be completed within the minimum credit hour requirement for the degree or may require more credits than the degree minimum. Students who complete multiple majors within one degree will be awarded one degree, and the transcript will list the degree and each major.

Second Degrees

Some students decide to continue their undergraduate studies after receiving their first bachelor’s degree. Students who attempt to earn dual baccalaureate degrees from WVU Tech but do not fully complete requirements for both degrees simultaneously will become second degree candidates. Students who have previously earned a bachelor’s degree, whether from WVU or another institution, must complete a minimum of thirty hours beyond the first degree. Second degree candidates must meet all requirements for their degree program, major, college, or school and the University, including residence requirements. GEC requirements, however, are generally considered satisfied by completion of the first

undergraduate degree. In the event that courses taken for the first bachelor's degree are required courses for the second degree program, the college or school granting the second degree may approve course substitutions. In no circumstance may the coursework in the second degree program be fewer than thirty credit hours after the conferral of the first degree.

Students must have an assigned academic advisor in each department from which the student will earn a degree prior to registering for the last full term before graduation.

Students who receive a Regents BA degree may qualify for a second baccalaureate after one academic year.

Cooperative Education

General Description

The Cooperative Education Program (Co-Op) alternates terms of on-campus study with terms of full-time employment. As an elective program, Co-Op presents students an opportunity to receive both practical and theoretical training in their chosen field of study over a five-year period. There are several advantages for students who elect to participate in this unique program. The Co-Op experience helps students decide early in their college career whether they wish to pursue their chosen academic major, helps students academically by adding new dimensions of understanding to their academic studies, helps students establish contacts in their field, helps students gain 12 to 20 months of practical work experience, and helps students to earn the funds to defray college education expenses.

Co-Op Eligibility Requirements

1. Be in the process of completing the first year of a declared BA/BS academic curriculum as outlined in the college catalog
2. Earn and maintain at least a 2.2 grade point average, although specific employers may require a higher grade point average
3. Be enrolled as a full-time student
4. Must be available for 3 work terms

A. FRESHMEN
Students may apply to the program during their second semester of study. Upon successful completion of their freshmen year, students are eligible to accept a CO-OP assignment.

B. UPPERCLASSMEN (30 credit hours)
Students who have completed more than 30 credit hours may apply to the program if grade point average, student status, and availability requirements are met.

C. TRANSFER STUDENTS may apply to the program during their first semester on campus. Upon successful completion of the first on-campus semester, transfer students are eligible to accept a CO-OP assignment.

CO-OP Availability

Co-Op work assignments are available to students enrolled in all BA/BS academic programs, depending upon the needs of potential employers.

CO-OP Employment

Cooperative Education participants, while on work assignments, are considered to be enrolled as full-time students at WVU Tech. Therefore, student status and financial aid, while not disbursed during co-op terms, are maintained. Participants will enroll in a co-op course for each work term and this enrollment will be documented on the student's academic transcript.

Housing arrangements, while the responsibility of the student, are often coordinated by the employer. Each employer establishes his or her own policy on wage and benefit packages. Participants will receive term performance evaluations. There is no obligation on the part of the student or employer to continue employment upon graduation.

Internship Program

This program was created to better serve both employers and students when career related employment opportunities develop that do not meet the three-term cooperative education work requirement. To be eligible, students must meet the same academic requirements as stated for the Cooperative Education program.

Departmental Practicums/Internships

A number of programs require supervised Practicum/Internships. The Practicum/ Internship is designed to combine theory and practice in a field integrated with the academic program. Examples include the Department of Social Sciences in the College of Business, Humanities and Social Sciences which require the Practicum Internship and Practicum Seminar for B.S. degree programs in Industrial Relations and Human Resources, Health Services Administration, and Public Service Administration. The Practicum/Internship and Practicum Seminar are arranged with cooperating sponsors during the student's senior year for up to 15 hours credit.

College of Business, Humanities And Social Sciences

General Information

The College of Business, Humanities and Social Sciences is one of two academic colleges at West Virginia University Institute of Technology. It includes many of the liberal and humanistic programs and courses commonly found in American colleges. These programs and courses make important contributions to the broad purposes of the institution, which endeavors to provide students with a knowledge of society, human experiences past and present, and the world in which we live; to foster an understanding and appreciation of the human, cultural, economic, political, environmental, ecological, and technological factors that have shaped human history and current concerns; and to develop the interests and creative capacities of students to their fullest extent.

The college offers courses necessary for the General Education Curriculum. All four-year programs require between forty-one and forty-three semester hours in General Education Curriculum courses designed to meet the broad functions of the University and to assure students the breadth of knowledge deemed essential to an educated person.

The College of Business, Humanities and Social Sciences also has an important part in fulfilling the career-oriented functions of the institution as well as preparing students for graduate/professional study. It provides a variety of programs, training persons to serve the business, industrial, and governmental needs of the state and nation and for service to the community through a wide range of online courses designed to meet the changing needs and interests of the region and the state. The college offers the nontraditional Regents B.A. program that allows credit for relevant work experiences and is tailored to meet the needs of working adult students.

Degree Programs:	**Codes**
Accounting, B.S.	008T
Athletic Coaching Education, B.S.	025T
Business Management, B.S.	010T
Career-Technical Education, B.S.	011T
Criminal Justice, B.S.	012T
Corrections Emphasis	ET16
Law Enforcement Emphasis	ET17
Forensic Investigation, B.S.	051T
Health Services Administration, B.S.	013T
History and Government, B.A.	014T
Interdisciplinary Studies, B.A./B.S.	016T

Degree Programs:	**Codes**
Psychology, B.A.	022T
Public Service Administration, B.S.	023T
Regents, B.A.	024T
Sport Management, B.S.	026T

Minors

Accounting	UT01
Business Administration	UT03
Criminal Justice	UT21
Economics	UT05
Finance	UT06
Fraud Examination	UT07
History and Government	UT09
Human Resources Administration	UT10
Marketing	UT13
Political Science	UT16
Professional Writing and Editing	UT23
Psychology	UT17
Risk and Insurance	UT18
Sociology	UT19
Sport Management	UT20

Certificate Programs

Undergraduate Certificate Program in Fraud Examination	CM01

Non-Degree Programs

General Studies	002T
Pre-Law	044T
Pre-Nursing	020T
Pre-Med	047T
Pre Pharmacy	048T
Military Science	

ACCOUNTING – Major Code 008T
Bachelor of Science

The accountant is concerned with all phases of business or government operation and, through the application of accurate cost analysis and accounting techniques, provides management with the facts and figures necessary to the management decision-making process. The accountant's decisions will determine the ultimate accuracy and validity of future management decisions.

The accounting curriculum at WVU Tech prepares the student for a broad range of positions in business and government. The program provides the student with strong accounting, business, & technical skills to be competitive in the modern technology-oriented job market. Graduates may pursue graduate work as well as seek such professional certifications as Certified Management Accountant (CMA), Certified Internal Auditor (CIA), and Certified in Financial Management (CFM). An additional 22 undergraduate/graduate credit hours enables students to sit for the Certified Public Accountants (CPA) examination. Contact the department chair for details.

Note: Restricted electives must be taken from ACCT 461, ACCT 420, ACCT 421, ACCT 442, ACCT 451, and ACCT 491.

Program Learning Outcomes

On completion of the program, students will be able to:

- Explain & apply the Generally Accepted Accounting Principles (GAAP) & IFRS
- Demonstrate proficiency in manual and computerized accounting systems.
- Prepare, interpret and analyze financial statements.
- Demonstrate critical thinking, problem solving, and written communication skills.
- Discuss and apply the code of professional ethics for accountants.

Accounting
Bachelor of Science

First Semester

WVUE	191	First Year Seminar	1
ACCT	201	Principles of Accounting	3
ENGL	101	Composition & Rhetoric (GEC 1)	3
MATH	123	Finite Math 1 (GEC 2)	3
GEC	2	Laboratory Science	4
		General Elective(s)	3
			17

Second Semester

CS	101	Intro to Computer Appl (GEC 2)	4
ACCT	202	Principles of Accounting	3
ENGL	102	Composition & Rhetoric (GEC 1)	3
GEC	2	Science Group B	3-4
		General Elective(s)	3
			16-17

Third Semester

ACCT	311	Intermediate Accounting	3
ECON	201	Prin of Microeconomics (GEC 8)	3
MANG	386	Business Statistics	3
BCOR	320	Legal Environment of Business	3
GEC	3	The Past & Its Traditions Elective	3
			15

Fourth Semester

ACCT	312	Intermediate Accounting	3
ECON	202	Prin of Macroeconomics (GEC 4)	3
BLAW	420	Law for the CPA	3
GEC	5	Artistic Expression Elective	3
GEC	6	The Individual in Society Elective	3
GEC	7	American Culture Elective	3
			18

Fifth Semester

FIN	325	Financial Management 1	3
ACCT	432	Advanced Cost Management	3
BCOR	370	Managing Individuals & Teams	3
ACCT	415	Advanced Accounting	3
		Restricted Elective(s)	3
			15

Sixth Semester

ACCT	348	Financial Statement Analysis	3
ACCT	322	Accounting Systems	3
BCOR	350	Principles of Marketing	3
FIN	326	Financial Management 2	3
		Restricted Elective(s)	3
			15

Seventh Semester

ACCT	441	Income Tax Accounting	3
ENGL	305	Technical Writing (GEC W)	3
GEC	9	Non-Western Culture Elective	3
		General Elective(s)	4
		Restricted Elective(s)	3
			16

Eighth Semester

ACCT	450	Accounting Technology	3
ECON	331	Money and Banking	3
BCOR	360	Operations & Quant Bus Methods	3
		Restricted Elective(s)	3
		General Elective(s)	3-4
			15-16

Note: 1. Restricted electives must be taken from ACCT 420, ACCT 421, ACCT 442, ACCT 451, ACCT 461, and ACCT 491.

2. Students must complete community service requirements and take the ETS Business Test prior to graduation.

graduation.

Undergraduate Certificate Program in Fraud Examination – Code CM01

The online undergraduate Certificate Program in Fraud Examination is offered online and is designed to prepare entry-level public accountants, governmental accountants, law enforcement officers, other business and finance professionals for positions in fraud analysis, fraud investigation, and compliance in business, government and nonprofit organizations. The program provides skills necessary to prevent, detect, investigate, and deter perpetration of fraud and help enhance their opportunity for advancement in several career fields.

The certificate program includes the following six courses:

ACCT 420	Fraud Examination	3 credit hours
ACCT 421	Fraud Management: Legal & Ethical Issues	3 credit hours
ACCT 422	Adv. Fraud Investigations/Analysis	3 credit hours
ACCT 423	Information Security and Controls	3 credit hours
ACCT 348	Financial Statement Analysis	3 credit hours
ACCT 449	Case Studies in Fraud Examination & Management	3 credit hours
	Total Hours	**18 credit hours**

On completion of 18 credit hours, the student will be awarded an Undergraduate Certificate in Fraud Examination.

Courses are offered over a span of three semesters starting in fall semester as follows:

Fall Semester	*ACCT 420 Fraud Examination ACCT 423 Information Security and Controls
Spring Semester	ACCT 422 Adv. Fraud Investigation/Analysis ACCT 348 Financial Statement Analysis
Summer (First 6 wks) Summer (Second 6 wks)	ACCT 421 Fraud Management: Legal & Ethical Issues ACCT 449 Case Studies in Fraud Examination & Management

***Must have completed the pre-requisite course ACCT 201 in order to enroll in ACCT 420**

ATHLETIC COACHING EDUCATION – Major Code 025T
Bachelor of Science

The College of Physical Activity and Sport Sciences at West Virginia University offers a Bachelor of Science degree in Physical Education with an emphasis in Athletic Coaching Education (ACE) at WVU Tech. The ACE Program provides students with an opportunity to study coaching and the important roles coaches have in society. The program provides students with hands on practicum experience in coaching throughout the curriculum. Athletic Coaching Education graduates are employed as coaches, strength and conditioning specialists, and work in the health and fitness industry.

During the initial hours of course work, students may enroll in courses in the Pre-Athletic Coaching Education Program. Applicants must meet the following requirements for admission to the ACE major:

- Achieve a 2.5 GPA in all coursework at the time of application to ACE
- Achieve a "C" or better in all Probationary ACE required courses (ACE 105, 106, 168, 256, 265; ATTR 121, PET 124, 125, 175; and three PE activity courses (27 credits).
- All ACE probationary required coursework completed (with advisor's approval, students may be admitted when they are within 9 credit hours of completing the Pre-ACE required coursework)
- 30 credits of GEC – MUST include the following (ENG 101, MATH 121 or 126, BIOL 111, CS 101, PSYC 241, WVUE 191, SEP 271, and SEP 272)
- West Virginia Coaching Certification
- Sport First Aid Certification
- CPR/AED Certification
- Signed ACE Admission Application

Program Learning Outcomes

This program has the following specific outcomes:

- Graduates may coach on the collegiate level
- Graduates may apply for graduate school and graduate assistantships in coaching
- Graduates may work in area businesses and coach locally
- Graduates will recognize the importance and significance of the role of coaching
- Graduates will recognize the importance of continuing emotional, intellectual, and physical development throughout their lives

To graduate with an undergraduate ACE degree, students must have:

- Minimum 2.0 GPA
- "C" or better in all ACE probationary and major courses
- ACE Admission Application and ACE faculty approval
- Negative result on a TB test
- Background check approval
- WVSSAC Coaching Certification (includes ASEP Coaching Principles, ASEP Sport First Aid and WV Rules and Regulations)
- Sport First Aid Certification (certification must be current once admitted into program and until graduation)

- CPR Certification (certification must be current once admitted into program and until graduation)
- AED Certification (certification must be current once admitted into program and until graduation)
- Completed one minor or area of emphasis (sport management, strength & conditioning, personal trainer, group fitness, sport communication, sport and exercise psychology, etc.)
- Apply for graduation with the Registrar's Office and the Chair's Office

Athletic Coaching Education – Major Code 025T
Bachelor of Science

First Semester

ENGL	**101**	**Composition & Rhetoric (GEC 1)**	**3**
GEC	**2**	**Science/Lab**	**4**
CS	**101**	**Intro to Computer Appl (GEC 2)**	**4**
WVUE	**191**	**First Year Seminar (GEC 6)**	**1**
ACE	**106**	**Intro to Athletic Coaching**	**3**
PE		**Activity Course**	**1**
PE		**Activity Course**	**1**
			17

Second Semester

ENGL	**102**	**Composition & Rhetoric (GEC 1)**	**3**
GEC	**2**	**Science/Lab Option**	**3-4**
MATH	**121**	**Intro to Concepts of Math (GEC 2)**	**3**
ACE	**265**	**Diversity & Sport**	**3**
ACE	**168**	**Sport Officiating**	**2**
		Minor	**3**
			17-18

Third Semester

SEP	**271**	**Sport in American Society (GEC 7)**	**3**
PET	**124 2**	**Human Body: Structure & Function**	
ACE	**256**	**Prin & Problems of Coaching**	**3**
ACE	**105**	**Nutrition for Coaches**	**3**
PE		**Activity Course**	**1**
GEC	**5**	**Artistic Expression Elective**	**3**
			15

Fourth Semester

SEP	**272**	**Psych Perspect. of Sport (GEC 6)**	**3**
PET	**125**	**Principles of Human Movement**	**2**
PET	**175**	**Motor Development**	**3**
ATTR	**121**	**Sport Injury Control & Mangmt**	**3**
GEC	8	Western Culture Elective	3
		Minor	3
			17

Students may apply to the ACE major when all courses in bold have be completely successfully

Fifth Semester

EXPH	365	Exercise Physiology 1	3
ACE	315	Sport for the Exceptional Athlete	3
ACE	368	Sport Movement Analysis	3
ACE		Techniques of Coaching	2
GEC	3	The Past and Its Traditions	3
		Minor	3
			17

Sixth Semester

ACE	330	Coaching Education Administration	3
ACE	410	Training Theories for Coaches	3
ACE		Techniques of Coaching	2
GEC	4	Contemporary Issues	3
GEC	9	Non-Western Culture Elective	3
		Minor	3
			17

Seventh Semester

ACE	369	Basic Strength and Conditioning	3
ACE	489	Practicum Coaching Youth Sport	3
ACE	491	Professional Field Experience	3
SM	426	Liability in Sport	3
ACE		Techniques in Coaching	2
			14

Eighth Semester

ACE	450	Career Planning in Sport	3
ACE	491	Professional Field Experience	3
ACE	488	Practicum Coaching Excep Athletes	3
		Minor	3
		Minor	3
			15

TOTAL CREDIT HOURS TO GRADUATE: 129-130

*For admission to ACE, all probationary coursework must be completed with a "C" or better and students must provide proof of First Aid/CPR/AED certification for admission. With advisor approval, students may be admitted to ACE when they are within 9 credit hours of completing the Pre-ACE required coursework.

BUSINESS MANAGEMENT – Major Code 10T
Bachelor of Science

The degree in business management provides a foundation in the areas of accounting, financial management, marketing, production management, organizational behavior, and economics. The program permits the student to obtain depth in these areas through restricted electives. Restricted electives are limited to 300 and 400 level classes with the following course codes: BLAW, BCOR, MANG, MKTG, ACCT, ECON, and FIN. A minimum grade of "C" is required in BCOR 350, BCOR 360, BCOR 370, and MANG 386. The program requirements for electives and restricted electives allow the student to obtain a minor in marketing, accounting, finance, economics, human resources administration, or management information systems. **Please note that several classes in the minors are offered only once every other year.** To complete minor requirements, it is the student's responsibility (1) to take classes when they are offered and (2) to meet course prerequisites.

Program Exit Competencies:

On completion of the program, students will be able to:

- Demonstrate proficient knowledge and skills within core business component
- Demonstrate proficiency in applying analytical abilities in business decision-making
- Demonstrate critical thinking and written communication skills
- Demonstrate the use of current business technology in basic decision-making applications
- Show the ability to work effectively in teams as a leader or a follower.

Business Management – Major Code 010T
Bachelor of Science

First Semester

BUSA	101	Introduction to Business	3
ENGL	101	Composition & Rhetoric (GEC 1)	3
MATH	123	Finite Math 1 (GEC 2)	3
WVUE	191	First Year Seminar	1
GEC	2	Lab Science	4
GEC	3	The Past & Its Traditions Elective	3
			17

Second Semester

ECON	201	Prin of Microeconomics (GEC 4)	3
ENGL	102	Composition & Rhetoric (GEC 1)	3
CS	101	Intro to Computer Appl	4
GEC	2	Science Group B	3-4
GEC	5	Artistic Expression Elective	3
			16-17

Third Semester

ACCT	201	Principles of Accounting	3
ECON	202	Prin of Macroeconomics	3
BCOR	370	Managing Individuals & Teams	3
BCOR	350	Principles of Marketing	3
GEC	7	American Culture Elective	3
			15

Fourth Semester

ACCT	202	Principles of Accounting	3
ENGL	305	Technical Writing (W)	3
MANG	330	HR Management of Fundamentals	3
MKTG		300-400 Level Elective(s)	3
		General Elective	3
			15

Fifth Semester

BCOR	320	Legal Environment of Business	3
FIN	325	Financial Management 1	3
ACCT	331	Managerial Accounting	3
MANG	386	Business Statistics	3
		Restricted Elective(s)	3
			15

Sixth Semester

BCOR	360	Operations & Quant Bus Methods	3
PSYC	101	Introduction to Psychology (GEC 6)	3
MKTG	485	Global Marketing	3
		General Elective(s)	3
		Restricted Elective(s)	3
			15

Seventh Semester

MANG	420	Business Information Systems	3
ECON	301	Intermed Micro-Economic Theory	3
MANG	422	The Individual & the Organization	3
		General Elective(s)	3
		Restricted Elective(s)	6
			18

Eighth Semester

BCOR	460	Contemporary Business Strategy	3
MANG	375	Business Simulation	3
GEC	9	Non-Western Culture Elective	3
		General Elective(s)	2
		Restricted Elective(s)	6
			17

NOTES:
1. Students must take ETS Business Test.
2. Students must complete community service requirements
3. Students must earn a "C" grade or better in BCOR 350, BCOR 360, BCOR370, and MANG 386.

CAREER-TECHNICAL EDUCATION – Major Code 011T
Bachelor of Science

The Department of Career-Technical Education provides opportunities for Industrial, Technical, Occupational Foods and Health Occupations teachers to meet State Department of Education certification requirements and pursue advanced professional development. These opportunities are provided through special summer sessions on campus and classes throughout West Virginia during the fall and spring semesters. Students, who meet the state requirements, take advantage of advanced professional development opportunities, and meet General Education Curriculum requirements, will be awarded the Bachelor's Degree in Career-Technical Education. Enrollment is limited to those currently employed as teachers in a career-technical program area.

For additional information:

Department of Career-Technical Education
West Virginia University Institute of Technology
3414 Orndorff Hall
Montgomery, WV 25136
Telephone (304) 442-3125

Program Learning Outcomes

Teachers completing the Career-Technical Education program will be able to:

- Incorporate learning goals into instructional plans.
- Incorporate intended learning outcomes & learning objectives into instructional plans.
- Incorporate student characteristics into instructional plans for purposes of instructional design.
- Incorporate teacher characteristics into instructional plans.
- Apply a personal framework for teaching in development of an instructional plan.
- Plan instructional strategies that are consistent with intended learning outcomes and objectives.
- Select, develop, and modify instructional materials to meet intended learning outcomes and objectives.
- Determine appropriate classroom procedures and organizational strategies to support the instructional environment.
- Incorporate information from various sources in planning for instruction.
- Select assessment or evaluation strategies to measure learning outcomes, objectives, and instructional effectiveness.
- Maintain a positive learning environment to support mastery of learning outcomes and objectives.
- Communicate with students to provide a context for learning that is consistent with instructional plans.
- Organize students, materials, and the classroom environment in ways that are consistent with instructional plans.
- Manage the instructional environment to enhance student learning and development consistent with instructional plans.
- Implement a variety of instructional strategies and materials consistent with instructional plans.

- Utilize questioning strategies consistent with instructional plans.
- Provide verbal and/or nonverbal feedback to students.
- Evaluate the effectiveness of the instructional process.
- Evaluate student progress toward mastery of learning outcomes and objectives.
- Organize, interpret, and summarize evaluation data for instructional planning and delivery and management.
- Report student evaluation results to students, parents, and appropriate school administrative personnel.
- Use available evaluation results.
- Establish and implement a continuing education plan to meet personal and professional goals.
- Demonstrate management skills to carry out nonteaching responsibilities.
- Follow school policies, rules, and regulations.
- Demonstrate skills necessary to work with school committees and community groups.

Career-Technical Education – Major Code 011
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
CTED	100	Teacher Education Orientation	1
CTED	485	Teaching Methods in CTE	3
CS	101	Intro to Computer Appl (GEC 2-C)	4
GEC	3	The Past & Its Traditions Elective	3
GEC	5	Artistic Expression Elective	3
			17

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
PSYC	241	Intro to Human Dev (GEC 4)	3
CTED	201	Intro to Career-Technical Education	3
CTED	307	Computer Applications in CTE OR	3
CTED	493	Advanced Computer Applications	
GEC	8	Western Culture Elective	3
			15

Third Semester

CTED	308	Application of Basic Skills in CTE	3
CTED	304	Safety in CTE	3
SPA	270	Effective Public Speaking (GEC 6)	3
GEC	2-B	Lab Science Sequence Elective	4
GEC	7	American Culture Elective	3
			16

Fourth Semester

CTED	409	Coord of Career-Tech Youth Act	3
CTED	303	Org/Mgmt of Schools, Shops, Labs	3
CTED	301	Occupational Analysis	3
GEC	2-B	Lab Science Sequence Elective	4
GEC	2-A	Math Elective	3
			16

Fifth Semester

CTED	423	Industrial Processes (Occ. Update)	3
CTED	423	Industrial Processes (Occ. Update)	3
CTED	302	Course Construction & Planning	3
CTED	306	Coordination of Co-Op CTE	3
GEC	9	Non-Western Culture Elective	3
			15

Sixth Semester

CTED	305	Methods of Examination in CTE	3
CTED	402	History & Philosophy of CTE	3
CTED	421	Teaching Special Students in CTE	3
CTED	423	Industrial Processes (Occ Update)	3
ENGL	305	Technical Writing (GEC W)	3
			15

Seventh Semester

CTED 423	Industrial Processes (Occ. Update)	3
	Occupational Competency Exam	15
		18

Eighth Semester

CTED	423	Industrial Processes (Occ Update)	3
		Occupational Competency Exam	15
			18

Note: Occupational Updating can be satisfied with a combination of CTED 422, 423, and/or 424.

CRIMINAL JUSTICE-Major Code 012T
Bachelor of Science

The Criminal Justice program is designed to provide a multidisciplinary understanding of crime and the criminal justice system. The curriculum was developed in conformance with the Academy of Criminal Justice Sciences' Ad-Hoc Committee on Minimum Standards for Criminal Justice Education. The program prepares graduates for local, state, and federal law enforcement, corrections, courts, homeland security, investigation, and related careers. The program also offers an excellent background for those wishing to pursue graduate studies or law school. Among its notable features are courses in criminal law, law enforcement administration, criminal investigations, corrections, juvenile justice, research methods, and a semester long capstone practicum externship.

Core classes for the Criminal Justice major are: CMJS 120 Survey of Criminal Justice, CMJS 245 Criminal Law, SOCA 232 Criminology, CMJS 310 Law Enforcement Administration, CMJS 320 Courts and Judicial Systems, POLS 313 American Constitutional Law, SOCA 311 Social Research Methods, CMJS 475 Seminar in Criminal Justice-Capstone, and HUMS 489 Practicum Internship. In addition, twenty-one hours of restricted electives must be chosen from the following: ACCT 421 Fraud Management: Legal/Ethical Issues, ECON 225 Elementary Business and Economics Statistics, CMJS 133 Juvenile Justice, CMJS 134 Substance Abuse Policy, CMJS 240 Correctional Counseling, CMJS 250 Community Based Corrections, CMJS 410 Criminal Investigations, POLS 102 Introduction to American Government, POLS 400 Terrorism and National Security, SOCA 101 Introduction to Sociology, SOCA 207 Social Problems-Contemporary America, SOCA 302 Deviant Behavior, and SOCA 305 Social Stratification and Power in American Society. The core and restricted elective classes make up the professional courses for the Criminal Justice major. General electives must be approved by the student's academic advisor.

Students majoring in Criminal Justice may select an emphasis in Law Enforcement (CMJS 133 Juvenile Justice, CMJS 134 Substance Abuse Policy, POLS 400 Terrorism and National Security, CMJS 410 Criminal Investigations), or Corrections (CMJS 133 Juvenile Justice, CMJS 240 Correctional Counseling, CMJS 250 Community Based Corrections, and SOCA 302 Deviant Behavior). An emphasis is not required for the B.S. in Criminal Justice. Criminal Justice majors qualify for a minor in Sociology.

Non-majors may minor in Criminal Justice by completing CMJS 120 Survey of Criminal Justice, CMJS 133 Juvenile Justice, and nine credits selected from the following: CMJS 310 Law Enforcement Administration, CMJS 320 Courts and Judicial Systems, CMJS 410 Criminal Investigations, ACCT 421 Fraud Management: Legal/Ethical Issues, HUMS 320 Public Administration, POLS 313 American Constitutional Law, POLS 400 Terrorism and National Security, SOCA 302 Deviant Behavior, and SOCA 311 Social Research Methods.

In addition to fulfilling graduation requirements outlined in the pattern sheet, students must also achieve an overall GPA of 2.0 in program professional courses and participate in program assessment.

The Criminal Justice program has the following learning outcomes:

- The student will be able to specify the decision points and alternative outcomes at each stage of the criminal justice process.
- The student will be able to apply the scientific method to a criminal justice research Problem.
- The student will be able to effectively communicate in written and oral form.

- The student will become culturally competent and aware of diversity in the work environment.

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Criminal Justice-Major Code 012T
Bachelor of Science

First Semester

WVUE	191	First Year Seminar	1
ENGL	101	Composition & Rhetoric (GEC 1)	3
CMJS	120	Survey of Criminal Justice	3
GEC	2	Math (Group A)	3
GEC	5	Artistic Expression Elective	3
GEC	2	Lab Science	4
			17

Second Semester

SOCA	101	Introduction to Sociology	3
ENGL	102	Composition & Rhetoric (GEC 1)	3
GEC	2	Group A, B, or C	3-4
GEC	2	Science (Group B)	3-4
		Restricted Elective(s)	3
			15 or 17

Third Semester

CMJS	245	Criminal Law	3
PSYC	101	Intro to Psychology (GEC 4)	3
ENGL	305	Technical Writing (W)	3
GEC	8	Western Culture Elective	3
		*Restricted Elective(s)	3
			15

Fourth Semester

PSYC	281	Intro Abnormal Psychology or	
SOCA	302	Deviant Behavior	3
HUMS	210	Introduction to Welfare	3
POLS	220	State & Local Government (GEC 3)	3
SOCA	232	Criminology (GEC 7)	3
HUMS	100	Community Service	2
		*Restricted Elective(s)	3
			17

Fifth Semester

SOCA	360	Women & Men in Society	3
SOCA	311	Social Research Methods	3
HUMS	320	Public Administration	3
		*Restricted Elective(s)	6
			15

Sixth Semester

SOCA	235	Race Relations	3
SOCA	430	World Religions	3
CMJS	320	Courts & Judicial Systems	3
CMJS	310	Law Enforcement Administration	3
SOCA	221	Families and Society (GEC 6)	3
		*General Elective(s)	3
			18

Seventh Semester

POLS	313	American Constitutional Law	3
GEC	9	Non-Western Culture Elective	3
		*General Elective(s)	3
		*Restricted Elective(s)	6
			15

Eighth Semester

HUMS	489	Practicum Capstone Internship	12
CMJS	475	Seminar in Criminal Just-Capstone	3
			15

*Students may choose General Elective courses from the list of Restricted Electives or from other university courses, approved by their advisor.

Criminal Justice
Law Enforcement Emphasis
Bachelor of Science

First Semester

WVUE	191	First Year Seminar	1
ENGL	101	Composition & Rhetoric (GEC 1)	3
CMJS	120	Survey of Criminal Justice	3
GEC	2	Math (Group A)	3
GEC	5	Artistic Expression Elective	3
GEC	2	Laboratory Science	4
			17

Second Semester

SOCA	101	Introduction to Sociology	3
ENGL	102	Composition & Rhetoric (GEC 1)	3
GEC	2	A, B, or C	3-4
GEC	2	Science Group B	3-4
CMJS	133	Juvenile Justice	3
			15 or 17

Third Semester

CMJS	245	Criminal Law	3
PSYC	101	Intro to Psychology (GEC 4)	3
ENGL	305	Technical Writing (W)	3
GEC	8	Western Culture Elective	3
CMJS	134	Substance Abuse Policy	3
			15

Fourth Semester

PSYC	281	Intro Abnormal Psychology or	
SOCA	302	Deviant Behavior	3
HUMS	210	Introduction to Welfare	3
POLS	220	State & Local Government (GEC 3)	3
SOCA	232	Criminology (GEC 7)	3
HUMS	100	Community Service	2
CMJS	410	Criminal Investigations	3
			17

Fifth Semester

SOCA	360	Women & Men in Society	3
SOCA	311	Social Research Methods	3
HUMS	320	Public Administration	3
CMJS		Elective	3
		*Restricted Elective(s)	3
			15

Sixth Semester

SOCA	235	Race Relations	3
SOCA	430	World Religions	3
CMJS	320	Courts & Judicial Systems	3
CMJS	310	Law Enforcement Administration	3
SOCA	221	Families and Society	3
POLS	400	Terrorism & National Security	3
			18

Seventh Semester

POLS	313	American Constitutional Law	3
GEC	9	Non-Western Culture Elective	3
		*General Elective(s)	3
		Restricted Elective(s)	6
			15

Eighth Semester

HUMS	489	Practicum Capstone Internship	12
CMJS	475	Seminar in Criminal Just-Capstone	3
			15

*Students may choose General Elective courses from the list of Restricted Electives or from other university courses (must be approved by their advisor.)

Criminal Justice
Corrections Emphasis
Bachelor of Science

First Semester

WVUE	191	First Year Seminar	1
ENGL	101	Composition & Rhetoric (GEC 1)	3
CMJS	120	Survey of Criminal Justice	3
GEC	2	Math (Group A)	3
GEC	5	Artistic Expression Elective	3
GEC	2	Laboratory Science	4
			17

Second Semester

SOCA	101	Introduction to Sociology	3
ENGL	102	Composition & Rhetoric (GEC 1)	3
GEC	2	Group A, B, or C	3-4
GEC	2	Science Group B	3-4
CMJS	133	Juvenile Justice	3
			15 or 17

Third Semester

CMJS	245	Criminal Law	3
PSYC	101	Intro to Psychology (GEC 4)	3
ENGL	305	Technical Writing (W)	3
GEC	8	Western Culture Elective	3
		*Restricted Elective(s)	3
			15

Fourth Semester

PSYC	281	Intro Abnormal Psychology or	
SOCA	302	Deviant Behavior	3
HUMS	210	Introduction to Welfare	3
POLS	220	State & Local Government (GEC 3)	3
SOCA	232	Criminology (GEC 7)	3
HUMS	100	Community Service	2
CMJS	240	Correctional Counseling	3
			17

Fifth Semester

SOCA	360	Women & Men in Society	3
SOCA	311	Social Research Methods	3
HUMS	320	Public Administration	3
CMJS	250	Community Based Corrections	3
		*Restricted Elective	3
			15

Sixth Semester

SOCA	235	Race Relations	3
SOCA	430	World Religions	3
CMJS	320	Courts & Judicial Systems	3
CMJS	310	Law Enforcement Administration	3
SOCA	221	Families and Society (GEC 6)	3
		*General Elective(s)	3
			18

Seventh Semester

POLS	313	American Constitutional Law	3
GEC	9	Non-Western Culture Elective	3
		*General Elective(s)	3
		Restricted Elective(s)	6
			15

Eighth Semester

HUMS	489	Practicum Capstone Internship	12
CMJS	475	Seminar in Criminal Just-Capstone	3
			15

*Students may choose General Elective courses from the list of Restricted Electives or from other university courses (must be approved by their advisor.)

Forensic Investigation – Major Code 051T

Bachelor of Science

The curriculum of the program emphasizes breadth of knowledge and the development of analytical skills. Familiarity with fundamental theories and practices within the social and natural sciences, enhanced communication skills, and an understanding of the limits and uses of forensic techniques form a base from which the student develops either a plan for entry into a graduate program or a career path. The program emphasizes the historical evolution of investigative techniques and terminology and the use of scientific methods to reconstruct the recent past. The program is appropriate for those planning a career as investigators as well as current practitioners. The curriculum combines classroom instruction, hands-on laboratory and practical field applications, and practicum experience. Students have the flexibility to select courses tailored for future graduate school admissions. Among the notable program's features are a course in research methods, a senior thesis, and a capstone practicum externship that places the student in a supervised setting for professional competence development.

The major requires 120 credit hours, including, among other requirements, completion of the Forensic Investigation Core curriculum consisting of foundational knowledge for investigators, documentation skills, crime scene and evidence analysis, legal parameters of investigation, interviewing and court room testimony. Students must earn a minimum grade of "C" in each FRNX course, maintain an overall 2.0 GPA for graduation, and complete 15 clock hours of department approved community service. The program requires completion of fifteen (15) hours of restricted electives selected with the approval of the student's advisor and allowing the student to tailor an undergraduate program for graduate school admissions or for greater exposure to investigative courses. They include:

ACCT 420 Fraud Examination	CHEM 234 Organic Chemistry II	FRNX 324 Forensic Anthropology
BIOL 111 General Biology	CHEM 235 Organic Chemistry Lab	FRNX 314 Questioned Documents
BIOL 112 General Biology	CHEM 236 Organic Chemistry Lab	FRNX 326 Investigative Intell
BIOL 303 Genetics	CHEM 310 Instrumental Analysis	FRNX 327 Sexual Assault Investi
CMJS 133 Juvenile Justice	CHEM 313 Inst. Analysis Lab	FRNX 422 Cold Case Investigations
CMJS 134 Substance Abuse Policy	COMM 100 Principles of Human Comm.	SOCA 232 Criminology
CMJS 410 Criminal Investigations	FRNX 224 AFIS Systems	SOCA 302 Deviant Behavior
CHEM 233 Organic Chemistry	FRNX 312 Digital Evidence	POLS 400 Terrorism Natl Security

HUMS 489 Additional practicum hours up to a total of 12.

Program Learning Outcomes

This program has the following specific outcomes:

Graduates of the Forensic program will have an understanding of the language, history, and traditions of the forensic discipline and the investigative professions.

- The student will have an understanding of the language, history, and traditions of the forensic discipline and the investigative professions.
- The student will be able to use critical thinking and problem solving in an investigative situation.
- The student will be able to effectively communicate in an interviewing, investigative, and in legal settings both orally and in writing.
- Students will have an appreciation of the ethical, legal, and regulatory issues impacting the decision making process.

Students will have the technical skills necessary to conduct investigative work.

While WVU Institute of Technology is a division of West Virginia University, WVU Tech offers some programs that are separate and distinct from the WVU main campus in Morgantown. The WVU main campus offers a B.S. program in Forensic and Investigative Science (FIS) http://forensics.wvu.edu/. The WVU Tech campus offers a B.S program in Forensic Investigation (FRNX). These are separate and distinct programs. The WVU-Morgantown FIS program's accreditation through the American Academy of Forensic Sciences (AAFS) does not encompass the WVU Tech FRNX program. WVU Tech courses labeled FRNX will not transfer into the WVU-Morgantown FIS program.

Forensic Investigation – Code 051T
Bachelor of Science

First Semester

CMJS	120	Survey of Criminal Justice	3
FRNX	101	Intro to Forensic Investigation	3
MATH	126A	College Algebra (GEC 2)	3
CHEM	111	Survey of Chemistry (GEC 2) or	
CHEM	115	Fundamentals of Chemistry (GEC 2)	4
ENGL	101	Composition and Rhetoric (GEC 1)	3
WVUE	191	First Year Seminar	1
			17

Second Semester

GEC	8	Western Culture Elective	3
SOCA	101	Intro to Sociology (GEC 7)	3
CS	101	Intro to Computer Appl. (GEC 2)	4
CHEM	112	Survey of Chemistry (GEC 2) or	
CHEM	116	Fundamentals of Chemistry (GEC 2)	4
ENGL	102	Composition and Rhetoric (GEC 1)	3
			17

Third Semester

PSYC	101	Introduction to Psychology (GEC 6)	3
PHSC	101	Introductory Physical Science 1	4
CMJS	245	Criminal Law	3
FRNX	210	Fingerprint Evidence I and Lab	4
ENGL	305	Technical Writing (GEC W)	3
			17

Fourth Semester

GEC	5	Artistic Expression Elective	3
GEC	9	Non-Western Culture Elective	3
FRNX	212	Advanced Fingerprint Evidence	3
ECON	225	Elem. Bus/Econ Stat (GEC 4) or	
STAT	211	Elem. Statistical Inference	3
POLS	102	Intro to American Gov. (GEC 3) or	
POLS	220	State and Local Government (GEC 3)	3
			15

Fifth Semester

FRNX	301	Investigative Photography	3
POLS	313	American Constitutional Law	3
FRNX	311	Trace and Blood Spatter Evidence	3
FRNX	315	Interviewing Theory/Practice	3
		Restricted Elective	3
			15

Sixth Semester

CMJS	320	Courts and Judicial Systems	3
FRNX	310	Firearms and Tool Marks	3
FRNX	318	Crime Scenes	3
FRNX	316	Medico-Legal Death Investigation	3
		Restricted Elective	3
			15

Seventh Semester

SOCA	311	Social Research Methods or	
PSYC	202	Research Methods in Psychology	3
		Restricted Elective	3
		Restricted Elective	3
		Restricted Elective	3
			12

Eighth Semester

FRNX	484	Sr. Seminar in Forensic Investigation	3
FRNX	496	Senior Thesis	3
HUMS	489	Practicum Capstone Internship	6
			12

HEALTH SERVICES ADMINISTRATION-Major Code 013T
(With Tracks and Minors)
Bachelor of Science

The Department of Social Sciences and Public Administration offers an interdisciplinary major in Health Services Administration leading to the Bachelor of Science degree. The program recognizes that many agencies require personnel with health skills combined with a strong background in both the sciences and management for research, service, and administrative positions.

Career opportunities may be sought on many levels and in many different types of organizations. The possibilities include a wide variety of settings: hospitals, various types of clinics or ambulatory care centers; mental health agencies; prepaid health maintenance organizations; health insurance companies; federal, state, and local governmental health agencies; and health specialty vendors.

The two program tracks provide alternative career training for students who are beginning their studies of health services administration in their freshman year (Track A), as well as those who already possess career skills or degrees (Track B). With Track A, a student may complete a regular four-year program. Track B is available to students with an Associate degree (including Allied Health fields), Bachelor's degree in other fields, or 3-year Diploma RN certificates through completion of the 2+2 curriculum. Diploma RNs must present a copy of their certificate and complete core and/or other program requirements. Associate degree students other than those with Allied Health degrees must complete core curriculum requirements in laboratory sciences.

Following the traditional interdisciplinary perspective in health services administration that encompasses sciences with a public health emphasis and a concrete orientation in business principles, students in Track A may use the restricted electives to declare several minors or emphasis areas. With careful planning, a student may minor in history and government, economics, business administration, political science, sociology, or human resources administration.

One of the distinctive features of the program in Health Services Administration is the wide assortment of classes in business, political science, economics, and other applied areas. Special courses include Introduction to Health Care Organizations, Health Services Planning, Health Services Law and Legislation, Medical Sociology, and the Practicum in Health Services Administration. Some classes are offered at night and particular attention is given to employed students so that they may work on their degrees.

Each student will participate in a semester-long supervised practicum capstone internship in which the student gains academic credit for administrative work experience in a cooperating health care facility.

Program Learning Outcomes

This program has the following specific outcomes:

- The student will demonstrate a broad based understanding of the dynamics of the health care industry, including familiarity with a variety of care delivery organizations, types of care delivery methods, and fiscal responsibilities.

- The student will be able to apply critical thinking and higher level analytical skills to problems and issues in their career fields.
- The student will be able to communicate effectively in oral and written form and have the specialized vocabulary utilized in the health care industry.
- The student will become culturally competent and aware of diversity in the work environment.

Health Services Administration (Track A)
Bachelor of Science

First Semester

WVUE	191	First Year Seminar	1
ENGL	101	Composition & Rhetoric (GEC 1)	3
MATH	126	College Algebra (GEC 2)	3
SOCA	101	Introduction to Sociology (GEC 4)	3
HIST	___	Elective	3
GEC	2	Lab Science	4
			17

Second Semester

PSYC	101	Intro to Psychology (GEC 6)	3
ENGL	102	Composition & Rhetoric (GEC 1)	3
CS	101	Intro to Computer Appl (GEC 2)	4
HUMS	100	Community Service	2
GEC	2	Science Group B	3-4
			15-16

Third Semester

BCOR	320	Legal Environment of Business	3
ECON	201	Prin of Microeconomics (GEC 8)	3
SOCA	207	**Social Prob–Con America (GEC 7)	3
ENGL	305	Technical Writing (GEC W)	3
SOCA	325	Illness and Health Care	3
		*Restricted Elective(s)	3
			18

Fourth Semester

ECON	202	Prin of Macroeconomics	3
ECON	240	Introduction to Labor Unions	3
POLS	220	State & Local Government (GEC 3)	3
HUMS	210	Introduction to Welfare	3
GEC	9	Non-Western Culture Elective	3
			15

Fifth Semester

HUMS	300	Intro to Health Care Organizations	3
HUMS	420	Principles of Microhealth Finance	3
HUMS	430	Medical Ethics	3
HUMS	320	Public Administration	3
GEC	5	Artistic Expression Elective	3
		*Restricted Elective(s)	3
			18

Sixth Semester

HUMS	400	Health Services Law & Legislation	3
HUMS	410	Fund Health Care Administration	3
HUMS	421	Principles of Macrohealth Finance	3
HUMS	470	Health Services Planning	3
ECON	225	Elem Business & Economic Stat	3
		*Restricted Elective(s)	3
			18

Seventh Semester

BCOR	350	Principles of Marketing	3
ECON	441	Public Economics	3
GEC	7	American Culture Elective	3
		*Restricted Elective(s)	6
			15

Eighth Semester

SOCA	333	Sociology of Work & Work Places	3
HUMS	489	*Practicum Capstone Internship	12
			15

*Restricted electives may be taken from courses in accounting, economics, labor studies, political science, sociology, human services, or other courses with consent of the advisor. The student may apply restricted electives to an emphasis or minor in the College of Business, Humanities and Social Sciences.

(At the discretion of the advisor, the practicum may be reduced with the addition of restricted electives.)
**May choose SOCA 235 Race Relations.

Health Services Administration (Track B)-Major Code 013T
Bachelor of Science

Pre-Requisites

Any Associate Degree
Any Three Year Diploma RN Certificate

ECON	201	Principles of Microeconomics	3
GEC	1	Composition & Rhetoric	3
GEC	1	Composition & Rhetoric	3
GEC	2	Introduction to Computer Appl	4
GEC	2	Lab Science	8
GEC	2	College Algebra	3
GEC	5	Artistic Expression Elective	3
GEC	6	PSYC 101 (Intro to Psychology)	3
GEC	8	ECON 202 (Macroeconomics)	3
GEC	9	Non-Western Culture Elective	3
GEC	W	Writing Class	3
		Total	39

Fifth Semester

HUMS	300	Intro to Health Care Organizations	3
HUMS	430	Medical Ethics	3
SOCA	101	Introduction to Sociology (GEC 4)	3
SOCA	207	**Social Problems (GEC 7)	3
HUMS	320	Public Administration	3
			15

Sixth Semester

ECON	240	Introduction to Labor Unions	3
HUMS	210	Introduction to Welfare	3
ECON	225	Elem Business & Economic Statistics	3
HUMS	410	Fund of Health Care Administration	3
HUMS	421	Principles of Macrohealth Finance	3
POLS	220	State & Local Government (GEC 3)	3
			18

Seventh Semester

BCOR	350	Principles of Marketing	3
ECON	441	Public Economics	3
HUMS	100	Community Service	2
HUMS	420	Principles of Microhealth Finance	3
HUMS	470	Health Services Planning	2
SOCA	325	Illness/Health Care	3
			16

Eighth Semester

HUMS	400	Health Services Law/Legislation	3
SOCA	333	Sociology of Work and Work Places	3
HUMS	489	*Practicum Capstone Internship	12
			18

*Notes: At the discretion of the advisor, the Health Services Administration practicum may be reduced with the addition of restricted electives.

**May choose SOCA 235 Race Relations.

HISTORY AND GOVERNMENT-Major Code 014T
Bachelor of Arts

The History and Government program has three essential purposes. First, it is designed to provide the student with insights into historical time periods of the nation and the world, with special emphasis upon political, social, economic, and technological changes. Secondly, it provides a strong background for graduate study in history and related fields, careers in government, services, and some areas of business, and positions with historical societies and museums. Thirdly, for students interested in attending law school, the program meets and exceeds the criteria for pre-law curricula established by the American Association of Law Schools. Foreign Language Option: **Students are encouraged to take 12 hours of foreign language.** These hours, with departmental approval, can be taken in lieu of history and literature courses, or the geography elective. Majors and non-majors with 12 hours of history courses may qualify for membership in Phi Alpha Theta, the national history honorary.

Entrance Exam: All students entering the history program must take the departmental entrance exam. This exam is for assessment purposes only, no passing score is required.

Assessment Criteria: Students must successfully complete History 484 and an assessment examination to fulfill graduation requirements. It is the student's responsibility to contact their advisor in the first two weeks of the final semester to register for the exam.

History and Government Minor: 21 semester hours: History 179 and 180, **OR** History 152 and 153, 9 hours of History 200+ courses, POLS 102, and POLS 300+.

Program Learning Outcomes

In addition to the general learning outcomes listed elsewhere in the catalog, graduates of this program should be able to:

- Demonstrate a general knowledge of the facts, concepts, and approaches of history;
- Critically analyze and assess primary sources.
- Critically analyze and assess secondary sources;
- Conduct original historical research and report results orally and in writing;
- Produce historical essays that are coherent, grammatically correct, and use proper historical documentation.

Note: With approval of the advisor, restricted electives may be selected from the following disciplines: history, economics, political science, literature, sociology, business, philosophy, or psychology.

History and Government-Major Code 014T
Bachelor of Arts

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	First Year Seminar	1
HIST	152	Growth of the Am Nation to 1865	3
GEC	2	*Lab Science	4
GEC	2-A	*Mathematics	3
GEC	5	Artistic Expression Elective	3
		**History Program Entrance Exam	
			17

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
HIST	153	Modern America 1865-Present	3
GEC	2	A, B, or C	3-4
GEC	2	*Science Group B	3-4
		Art or Music Elective	3
			15-17

Third Semester

HIST	179	World History to 1500	3
POLS	102	Intro to American Gov (GEC 3)	3
GEOG	102	World Regions (GEC 9)	3
PSYC	101	Intro to Psychology (GEC 6)	3
ECON	201	Prin of Microeconomics (GEC 8)	3
			15

Fourth Semester

HIST	180	World History since 1500	3
HIST	277	Rev in Science and Technology	3
SOCA	101	Introduction to Sociology (GEC 7)	3
ECON	202	Prin of Macroeconomics	3
SPA	270	Effective Public Speaking (GEC 4)	3
GEOG		Geography Elective	3
			18

Fifth Semester

POLS	319	Comparative Government	3
HIST	207	Revolutionary Europe	3
HIST	218	History of Russia: 1900-Present	3
ENGL		Literature Elective	3
		or	
		Foreign Language	
		Restricted Elective(s) 300+	3
			15

Sixth Semester

POLS	220	State and Local Government	3
HIST	316	World War I in Europe	3
PSYC	351	Topics in Social Psychology	3
HIST		Elective(s) 300+	3
ENGL		Literature Elective	3
		or	
		Foreign Language	
		Restricted Elective(s) 300+	3
			18

Seventh Semester

HIST	261	Recent America: the US since 1918	3
HIST	464	American Diplomacy Since 1941	3
HUMS	480	Grant Writing & Documentation	3
ECON		Elective(s) 300+	3
		Minor or Elective(s)	3
			15

Eighth Semester

HIST	484	Historical Research Capstone	3
HIST	453	Civil War & Reconstruction	3
HIST		Elective 300+	3
POLS		300+	3
		Minor or Elective	3
		***Assessment Exam	
			15

*See GEC Curriculum: Note: See institutional GEC requirements.
**Admission only/no passing grade required.
***Must be taken last semester.

INTERDISCIPLINARY STUDIES- Major Code 016T
Bachelor of Science/ Bachelor of Arts

The WVU Tech student who is studying Interdisciplinary Studies (IDSC) in the College of Business, Humanities and Social Sciences is provided the unique opportunity to develop her/his own *Program of Study*, toward either a Bachelor of Science or a Bachelor of Arts degree.

Based upon the student's selected *areas of academic discipline (ADs)*—this unique degree option includes Guided Electives that can be used for undergraduate research and/or internships as well as other experiential, "Career Goal" learning opportunities. Each student's self-designed program of interdisciplinary study is what makes an IDSC degree unique. While reading through this Program description, refer to and compare the IDSC course distribution template sheet options for the B.S. and B.A. degrees, which are included below.

WVU Tech Students seeking candidacy in Interdisciplinary Studies

Any WVU Tech Student (including transfer students &first-year students) who would like to be considered for IDSC candidacy and who is able to identify the ADs in which she/he is interested from the Core List of Academic Disciplines (ADs) below is encouraged to submit a brief "IDSC Petition Statement" to the Dean's Office in the College of BHSS or to the advisory committee for interdisciplinary studies. The Petition Statement must identify the ADs (at least two but no more than three) in which the student is interested, and it must specifically confirm the student's willingness to work with a faculty committee for interdisciplinary success. Once the Petition Statement is reviewed and the petition granted, the student will be contacted by a member of his/her faculty committee.

The following Core List of Academic Disciplines (ADs) offers only a sampling of the IDSC student opportunities for combining two or three areas of study and scholarship.

Core List of Academic Disciplines (ADs)

- Accounting
- Criminal Justice
- English Studies
- Fraud Examination
- Human Resources Administration
- Psychology
- Sociology
- Business Management
  - Economics
  - Accounting & Finance
- History and Government
- Marketing
- Risk and Insurance
- Sport Management

More options than the ones in the above list are available throughout the University. Students are encouraged to explore IDSC Program options, including after they enter upon the IDSC degree. Students considering entering upon the IDSC degree who wish to identify ADs other than those in the above Core List should make arrangements to meet with an IDSC advisor prior to preparing the Petition Statement for entry into the Program. The following description offers concise answers to a few general questions about Interdisciplinary Studies at WVU Tech.

What is an Area of Academic Discipline (AD)?

An *area of academic discipline* has been defined by the College as consisting of "a minimum of 18 course credits
within a given academic discipline, where at least one-half of the course credits are earned in upper-division courses,

i. e., 300-level or above." Furthermore, the requirements for an IDSC degree stipulate that a minimum of 60 credits
in the ADs must be earned beyond GEC requirements. A minimum of one-half of these credits (30 credits) must be upper division. Since all University degrees must include a minimum of 128 hours, with a minimum of 40 upper division credits, students in IDSC must earn one-half of their AD credits in 300- and 400- level courses and also satisfy the university requirement for 40 hours of upper division. Thus, in a situation where the minimum 60 credits in the ADs have been earned beyond the GEC, the student must earn 30 upper-division credits in the ADs, while the
additionally required 10 upper-division credits may or may not be in the ADs.

What does an IDSC Student-Faculty Committee look like?

The members of an IDSC Student-Faculty Committee are the student, one faculty member from each of the ADs
chosen by the student, and one *ex officio* faculty member appointed by the advisory committee for Interdisciplinary
Studies. Starting with an IDSC course distribution template sheet like the ones enclosed in this catalog, an IDSC
Student-Faculty Committee begins by developing the student's *Program of Study*.

What is the IDSC Student's *Program of Study*?

The IDSC student, under the guidance of her/his student-faculty committee, develops a *Program of Study* document, one that sets forth the course plan for the degree, a plan that must be approved by the Dean's Office, then filed with the university registrar. This document is the unique course plan for the individualized degree, yet it is a living document that targets courses by semester (including the AD course sequences and upper-division electives that incorporate the important "Career Goal" MDS courses). This document remains open and adjustable as the student moves forward within the degree toward graduation.

As written, the IDSC *Program of Study* needs to include and confirm the following key components:

1. Identification of two or three prioritized areas of concentration (AD1, AD2,…), each with the minimum of 18 credit hours; in practice, Restricted Electives add further scholarship specific to the ADs.

2. Designation as a Bachelor of Arts degree, with 12 credit hours in the same foreign language, or as a Bachelor of Science degree, with 3 minimum credits in mathematics and 3 minimum credits in computer applications.

3. A minimum concentration of 60 hours beyond GEC requirements from designated academic disciplines ADs); again, a minimum of one-half of these degree credits must be upper division (300- or 400-level) courses.

4. Confirmation statements regarding the following IDSC Program requirements: The student will work with her/his committee to ensure (1) that AD1 course credits will equal or exceed credits earned in the other AD(s); (2) that a minimum of one-half of all AD credits will be upper division (300- or 400-level) courses; and (3) that a 3- or 4-credit Senior Project proposal—interdisciplinary in nature—will be submitted for the student's selected Ads; credit value for this Senior Project depends upon the number of Ads pursued within the degree.

In preparing the *Program of Study*, the IDSC student-faculty committee selects lower-division courses that satisfy the university's General Education Curriculum [GEC] requirements, within the nine prescribed goal areas (GEC 1 through GEC 9 on the enclosed course distribution

sheets). Then, the committee projects the Restricted Electives and Guided Electives that will define the remaining upper-division courses of the unique IDSC degree. Restricted Electives should be chosen from the college catalog course lists specific to the student's ADs so that the Program requirements stated herein are met. Students are encouraged to work with their committees to identify, develop and secure Guided Electives that can include "Career Goal" opportunities within Multidisciplinary (MDS) courses that define internships, undergraduate research, and other directed projects all of which further distinguish the uniqueness of the degree.

What are the Multidisciplinary Studies (MDS) courses?

Three MDS courses have been adopted by the College: MDS 491: Professional Field Experience; MDS 492: Directed Study; and MDS 495: Independent Study. These courses should be targeted by IDSC Student-Faculty Committees to fulfill the Guided Electives from the IDSC Course Distribution template sheets:

> **MDS 491. Professional Field Experience.** 1-18 Hr. PR: Consent. (May be repeated up to a maximum of 18 hours.)
> Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.
>
> *MDS 491 Guided Electives will indicate IDSC internship credits.
>
> **MDS 492. Directed Study.** 1-3 Hr. Directed study, reading, and or research.
>
> *MDS 492 Guided Electives will indicate IDSC undergraduate research credits.
>
> **MDS 495. Independent Study.** 1-6 Hr. Faculty supervised study of topics not available through regular course
> offerings.
>
> *MDS 495 Guided Electives will indicate the IDSC Senior Project.

What is the Senior Project?

In the final year of her/his Program, the student enrolls in the IDSC Senior Project (MDS 495: Independent Study), a culminating project planned and proposed by the student-faculty committee that includes career-placement activities projected to develop as extensions of the Guided Electives, often either for career placement or ongoing study in graduate school.

At some point in the progression of their studies, IDSC students prioritize, or rank, their ADs. The highest ranked
AD is labeled "AD1." This ranking can offer important guidelines within an IDSC degree since:

(1) the AD1 faculty member will be identified in most cases as the chairperson of the student-faculty committee as well as the Director of the Senior Project;
(2) the Senior Project credits assigned to AD1 within the Project proposals must equal or exceed that of the other ADs;

Qualification and Admission to Interdisciplinary Studies

Traditionally, admission to the IDSC program required the student to have completed a minimum of 15 hours of college credit at WVU Tech and, in the case of transfer students, a maximum of 64 hours of total college credit. Exceptions for the 15-hour minimum normally are made for those students who have demonstrated academic success in the identified areas of concentration, especially with, but not limited to, AP course and exam requirements, or other academic and learned experience qualifications. Exceptions to the 64-hour maximum normally are made for those who have earned an associate degree requiring more than 64 hours. For

more information, please contact the Office of the Dean, College of Business, Humanities and Social Sciences.

Bachelor of Arts in Interdisciplinary Studies-Major Code 016T
Two Academic Disciplines: AD1 & AD2

(IDSC Academic Disciplines (AD 1 & AD2) each require a "minimum of 18 credit hours; at least one-half of all credit hours beyond GEC requirements must be 300 or 400-level; Total credits: 128

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	First Year Seminar	1
SPAN	101	Elementary Spanish 1 (GEC 8 or 9)	3
GEC	2	Math Elective (100-level minimum)	3
GEC	3	The Past & Its Tradition Elective	3
	AD	Restricted Elective 1	1
			16

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
CS	101	Intro to Computer Appl (GEC 2)	4
SPAN	102	Elementary Spanish 2	3
GEC	4/6	Contemp/Indiv in Society Elective	3
GEC	5	Artistic Expression	3
			16

Third Semester

	AD1	Discipline 1 Requirement (#1 of 6)	3
	AD2	Discipline 2 Requirement (#1 of 6)	3
SPA	270	Effect Public Speaking (GEC 4 or 6)	3
SPAN	203	Intermediate Spanish 1	3
GEC	2	Lab Science	4
			16

Fourth Semester

	AD1	Discipline 1 Requirement (#2 of 6)	3
	AD2	Discipline 2 Requirement (#2 of 6)	3
ENGL	305	Technical Writing (GEC 1)	3
SPAN	204	Intermediate Spanish 2	3
GEC	2	Science Group B	3-4
			15-16

Fifth Semester

	AD1	Discipline 1 Requirement (#3 of 6)	3
	AD2	Discipline 2 Requirement (#3 of 6)	3
	AD	Restricted Elective 2	3
	AD	Restricted Elective 3	3
	IA	Guided Elective 1	3
GEC	7	American Culture Elective	3
			18

Sixth Semester

	AD1	Discipline 1 Requirement (#4 of 6)	3
	AD2	Discipline 2 Requirement (#4 of 6)	3
	AD	Restricted Elective 4	3
	AD	Restricted Elective 5	3
	IA	Guided Elective 2	3
			15

Seventh Semester

	AD1	Discipline 1 Requirement (#5 of 6)	3
	AD2	Discipline 2 Requirement (#5 of 6)	3
	IA	Guided Elective 3	3
GEC	8 or 9	Western/Non-Western Culture Elec	3
MDS	495	Independent Study: "Senior Project"	4
			16

Eighth Semester

	AD1	Discipline 1 Requirement (#6 of 6)	3
	AD2	Discipline 2 Requirement (#6 of 6)	3
	AD	Restricted Elective 6	3
	IA	Guided Elective 4	3
	IA	Guided Elective 5	3
			15

Notes: IDSC course distribution template sheets like this one offer a starting point for development of the IDSC student's Program of Study, a document which identifies, among other things, the student's selected IDSC Areas of Academic Discipline (ADs). The Program of Study must be approved by the College Dean's Office and filed with the University Registrar prior to the Drop/Add deadline of the student's second semester as a declared IDSC major; however, the document remains flexible up to the final semester before the student earns the degree and graduates. IDSC Programs of Study are developed by a student-faculty committee, whose members are the student, faculty members representing the ADs chosen by the student, and an *ex officio* faculty member appointed by the advisory committee for Interdisciplinary Studies.

When students register each semester, the following guidelines for the selection of course electives should be followed: (1) Restricted Electives should focus on additional AD courses; (2) Guided Electives should include "Career Goal" courses: Multidisciplinary (MDS) internship, research, etc. (3) IDSC requires a minimum of 60 AD credits beyond the GEC: thus, a minimum 30 upper-division AD credits; at the same time, the University requires a minimum of 40 upper-division credits for any Bachelor degree, leaving 10 upper-division credits that may reside outside the ADs; (4) At least one-half of all AD credits must be upper-division courses. (5) All University B.A. degrees require four semesters of the same foreign language. The Senior Project (MDS 495: Independent Study) must be scheduled during the semester preceding the student's final semester; however, the Senior Project proposal should be in-development even earlier so that tie-in opportunities with the Guided Electives may be incorporated. Students also need to indicate an AD ranking, so that AD1 credits equal or exceed credits in the other AD(s). The AD1 faculty member is normally identified as the chairperson of the student-faculty committee and as the Director of the Senior Project.

Bachelor of Science in Interdisciplinary Studies-Major Code 016T
Two Academic Disciplines: AD1 & AD2

(IDSC Academic Disciplines (AD 1 & AD2) each require a "minimum of 18 credit hours; at least one-half of all credit hours beyond GEC requirements must be 300 or 400-level; Total credits: 128

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	First Year Seminar	1
GEC	2	Math Elective (100-level minimum)	3
GEC	3	The Past & Its Tradition Elective	3
GEC	8	Western Culture Elective	3
	AD	Restricted Elective 1	1
			16

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
GEC	4/6	Contemp/Indiv in Society Elective	3
GEC	5	Artistic Expression Elective	3
GEC	9	Non-Western Culture Elective	3
	AD	Restricted Elective 2	3
			15

Third Semester

	AD1	Discipline 1 Requirement (#1 of 6)	3
	AD2	Discipline 2 Requirement (#1 of 6)	3
CS	101	Intro to Computer Appl. (GEC 2)	4
SPA	270	Effect Public Speaking (GEC 4 or 6)	3
GEC	2	Lab Science	4
			17

Fourth Semester

	AD1	Discipline 1 Requirement (#2 of 6)	3
	AD2	Discipline 2 Requirement (#2 of 6)	3
ENGL	305	Technical Writing (GEC 1)	3
GEC	2	Science Group B	3-4
	AD	Restricted Elective 3	3
			15-16

Fifth Semester

	AD1	Discipline 1 Requirement (#3 of 6)	3
	AD2	Discipline 2 Requirement (#3 of 6)	3
	AD	Restricted Elective 4	3
	AD	Restricted Elective 5	3
	IA	Guided Elective 1	3
GEC	7	American Culture Elective	3
			18

Sixth Semester

	AD1	Discipline 1 Requirement (#4 of 6)	3
	AD2	Discipline 2 Requirement (#4 of 6)	3
	AD	Restricted Elective 6	3
	AD	Restricted Elective 7	3
	IA	Guided Elective 2	3
			15

Seventh Semester

	AD1	Discipline 1 Requirement (#5 of 6)	3
	AD2	Discipline 2 Requirement (#5 of 6)	3
	AD	Restricted Elective 8	3
	IA	Guided Elective 3	3
MDS	495	Independent Study: "Senior Project"	4
			16

Eighth Semester

	AD1	Discipline 1 Requirement (#6 of 6)	3
	AD2	Discipline 2 Requirement (#6 of 6)	3
	AD	Restricted Elective 9	3
	IA	Guided Elective 4	3
	IA	Guided Elective 5	3
			15

Notes: IDSC course distribution template sheets like this one offer a starting point for development of the IDSC student's Program of Study, a document which identifies, among other things, the student's selected IDSC Areas of Academic Discipline (ADs). The Program of Study must be approved by the College Dean's Office and filed with the University Registrar prior to the Drop/Add deadline of the student's second semester as a declared IDSC major; however, the document remains flexible up to the final semester before the student earns the degree and graduates. IDSC Programs of Study are developed by a student-faculty committee, whose members are the student, faculty members representing the ADs chosen by the student, and an *ex officio* faculty member appointed by the advisory committee for Interdisciplinary Studies.

When students register each semester, the following guidelines for the selection of course electives should be followed: (1) Restricted Electives should focus on additional AD courses; (2) Guided Electives should include "Career Goal" courses: Multidisciplinary (MDS) internship, research, etc. courses; (3) IDSC requires a minimum of 60 AD credits beyond the GEC: thus, a minimum 30 upper-division AD credits; at the same time, the University requires a minimum of 40 upper-division credits for any Bachelor degree, leaving 10 upper-division credits that may reside outside the ADs; (4) At least one-half of all AD credits must be upper-division courses. (5) All University B.S. degrees require one Math and one Computer Science elective. The Senior Project (MDS 495: Independent Study) must be scheduled during the semester preceding the student's final semester; however, the Senior Project proposal should be in-development even earlier so that tie-in opportunities with the Guided Electives may be incorporated. Students also need to indicate an AD ranking, so that AD1 credits equal or exceed credits in the other AD (s). The AD1 faculty member is normally identified as the chairperson of the student-faculty committee and as the Director of the Senior Project.

MILITARY SCIENCE

The military science curriculum stresses the techniques and practical application of organizational theory, leadership, and decision-making for both women and men. The basic course, normally taken during the freshman and sophomore years, is designed to explore the mainstreams of thought about the structuring of cooperative effort in organizations from the origins of formal theory to the recent contributions of the behavioral sciences. Course objectives are to gain familiarity with the literature and leading concepts, to increase understanding of processes and issues in organizational life, and to develop analytical skills in the leadership, management and decision making functions. Building on the theoretical groundwork, the program emphasizes application and practical experience.

To achieve the above objectives, the Military Science curriculum will include both experiential and didactic learning methods. The experiential learning component includes both laboratory situations and selected outside activities. The didactic learning component revolves around the more familiar approaches of lectures. Approximately one-third of each semester is devoted to the didactic learning method. The remaining two-thirds of each semester of the first year is devoted to the experiential learning component wherein students may elect to enroll in two of the following activities each semester: basic mountaineering, basic patrolling, basic rifle marksmanship, basic map reading and land navigation, basic self-defense, and management seminar.

The second year of the basic program is an extension of the first year. Students continue their study of organizational theory, leadership, and management. Elective activities offered during the second year are advanced training in the same activities that were offered during the first year.

The basic program, described above, has a weekly requirement of two hours and imposes no military obligation, nor military standards of dress, physical fitness, discipline, and appearance on the part of the enrolled students. Students may withdraw at any time from the basic course.

The advanced program, normally taken during the junior and senior years, is limited to those graduates of the basic program who have demonstrated both a potential for and a desire to become future leaders in the U.S. Army. The curriculum of the advanced course builds upon and reinforces the knowledge gained in the basic course. In the advanced program, experiential and didactic learning methods are oriented toward a single organization. The U.S. Army course objectives are to increase the student's understanding of processes and issues in Army organizational life and to develop analytical skills in the leadership, organization, management, and administration of military organizations.

PSYCHOLOGY-Major Code 022T
Bachelor of Arts

The Bachelor of Arts degree in Psychology has an emphasis in human behavior and counseling. It is broadly conceived and designed to prepare students for a variety of careers. Among the notable features of the program are a course in research methods with an emphasis in behavior analysis and adjustment in a laboratory setting, a field experience option that allows students to earn credits for placement in a public or private enterprise for professional competence development, and a capstone course that integrates methodology, research, and writing in the discipline. The combination of coursework and field experience will permit students to achieve professional certification necessary to work with special needs children.

Graduates of the program will be prepared to enter careers in applied mental health or organizational settings. Some examples of career options include education, children and youth behavioral services, adult behavioral services, counseling, corrections, health-care related occupations, and other fields. Psychology majors may also pursue advanced degrees in graduate or professional schools.

Program Learning Outcomes

Students completing the program will:

- Have an ability to conduct comprehensive research reviews using psychological scientific literature, exhibit intelligent reading and interpretation of the literature, and prepare scientific papers using the format approved by the American Psychological Association.
- Pursue the scientific approach in problem solving with emphasis on designing experiments involving human and animal participants.
- Have a knowledge of the fundamental psychological concepts and processes necessary for the pursuit of such careers as psychological scientists, counselors, and other fields.
- Be capable of critical thought and pursue a lifelong pattern of educational and professional development.

Requirements to Graduate

Minimum 36 psychology credits for the major, 128 credits overall for graduation. An overall 2.0 average in all psychology courses attempted is required for graduation. In addition, a minimum of "C" is required in the following courses: PSYC 101, 201, 202,241, or 251, 301, 302, and STAT 211 or ECON 225.

Restricted Electives may be taken in: psychology, biology, chemistry, physics, computer science, foreign language, economics, sociology, mathematics, fine arts, history, nursing, or political science. <u>9 of the credit hours must be in 300/400 level courses.</u>

Humanities/Art Electives

Any courses in the following subjects fulfill the psychology humanities/art electives:
English
Art

History
Philosophy
Music
Drama/Theater
Foreign Languages

Note that GEC courses and courses otherwise already required for the Psychology degree are not permitted to count as a Humanities/Art elective.

Psychology-Major Code 022T
Bachelor of Arts

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
GEC	2	Math Object. (MATH 126A, B, or C)	3
PSYC	101	Intro to Psychology (GEC 6)	3
GEC		Object. (select 1 from 3,5,8,9)***	3
WVUE	191	First Year Seminar	1
		Foreign Language*	3
			16

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
STAT	211	Elem Statistical Inference (GEC 2)	or
ECON	225	Elem Business & Econ Statistics	3
PSYC	241	Intro to Human Dev (GEC 4)	3
GEC		Object. (select 1 from 3,5,8,9)	3
PSYC	201	Psychology as a Profession	1
		Foreign Language*	3
			16

Third Semester

PSYC	301	Biological Foundations of Behavior	3
PSYC	363	Personality Theory	3
BIOL	111	General Biology (GEC 2)	4
BIOL	111	Biology Lab	0
PSYC	202	Research Methods in Psychology	3
		Foreign Language*	3
			16

Fourth Semester

BIOL	112	General Biology (GEC 2)	4
BIOL	112	Biology Lab	0
ENGL	305	Technical Writing (GEC W)	3
PSYC	351	Topics in Social Psychology	3
SPA	270	Effective Public Speaking	3
		Foreign Language*	3
			16

Fifth Semester

SOCA	101	Intro to Sociology (GEC 7)	3
PSYC	362	Psychology Assessment	3
SOCA	207	Social Prob.-Contemp Amer (GEC 4)	3
GEC		Object. (select 1 from 3,5,8,9)	3
		Open Elective(s)	3
			15

Sixth Semester

PSYC	382	Exceptional Children	3
PSYC	281	Intro to Abnormal Psychology	3
PSYC	302	Behavior Principles	4
		Restricted Elective(s)	6
			16

Seventh Semester

PSYCH	491	Field Experience OR	
PSYCH	495	Independent Study OR	
PSYCH	493	Special Topics**	3
PSYC	424	Learning & Behavior Theory	3
PSYC	474	Behavior Modification	3
		Humanities/Art Elective(s)	3
		Restricted Elective(s)	6
			18

Eighth Semester

PSYC	401	Psychology Capstone Experience	1
GEC		Object. (select 1 from 3,5,8,9)***	3
		Humanities Elective(s)	3
		Restricted Elective(s)	8
			15

*12 credit hours in a single foreign language (elementary and intermediate levels).
Note: One year of Foreign Language at the high school level equals one college semester of the same Foreign Language. A second year of high school Foreign Language equals two college semesters of the same Foreign Language, and so on.

**One of these three must be taken: PSYC 491, 495, or 493. If more than one is taken, then the additional credits may be applied to restricted electives.

***One course must be taken from each of the following GEC Objectives: 3,5,8, and 9 in any order. Restricted electives may be taken in: psychology, biology, chemistry, physics, computer science, criminal justice, foreign language, economics, sociology, mathematics, fine arts, history, nursing, political science, or forensic science. 9 out of the 20 credit hours must be in 300/400 level courses.

PUBLIC SERVICE ADMINISTRATION-Major Code 023T
Bachelor of Science

The Public Service Administration (PSA) major was revised in 2014 as an interdisciplinary 120 credit hour program that enables students to complete the degree, including the internship, in a timely manner. There is a built-in practicum internship that gives the students job experience and allows them to apply the skills they have obtained during the course of their studies. This degree prepares students for careers with all levels of government; local, county, state and federal. PSA also prepares students for a career in non-profit organizations. It is a perfect pre-law degree as it provides a number of political science courses. In addition this degree is perfect for continuing on to graduate school in social work, public administration, political science, sociology, or business administration. Providing the correct restrictive electives are chosen, a student can obtain a minor in political science, sociology or economics without additional course work.

Program Learning Outcomes

- The student will demonstrate leadership skills through written and oral communications, both in person and through computer technology.
- The student will be able to evaluate policy, use critical thinking skills, and be able to make some predictions concerning how these policies will impact their individual and collective situations.
- The student will know the process of managing an organization or government agency program, including understanding the fiscal responsibilities.
- The student will become culturally competent and aware of diversity in the work environment.

Public Service Administration-Major Code 023T
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	First Year Seminar	1
MATH	123	Finite Math 1*	3
GEC	2	Science with lab	4
		General Elective(s)	3
			14

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
SOCA	101	Introduction to Sociology (GEC 4)	3
CS	101	Intro to Computer Appl (GEC 2)	4
GEC	2	Science with or without lab	3-4
		Restricted Elective	3
			16-17

Third Semester

ECON	201	Prin of Microeconomics	3
BCOR	370	Managing Individuals & Teams	3
POLS	102	Intro to American Gov** (GEC 3)	3
PSYC	101	Introduction to Psychology**	3
GEC	6	The Individual in Society Elective	3
			15

Fourth Semester

ECON	202	Prin of Macroeconomics** (GEC 8)	3
POLS	220	State and Local Government	3
HUMS	210	Introduction to Welfare	3
ENGL	305	Technical Writing (GEC W)	3
SOCA	333	Work & Work Places	3
POLS	260	International Relations**	3
			18

Fifth Semester

ECON	441	Public Economics	3
HUMS	320	Public Administration	3
GEC	5	Artistic Expression Elective	3
ECON	480	Grant Writing	3
SOCA	305	Social Stratification	3
			15

Sixth Semester

ECON	225	Elem Business & Economics Stat or	
STAT	211	Elem. Statistical Inference	3
SOCA	235	Race Relations** or	
SOCA	207	Social Problems**	3
GEC	7	American Culture Elective	3
GEC	9	Non-Western Culture Elective	3
		Restricted Elective(s)	3
			15

Seventh Semester

MANG	422	The Individual & the Organization	3
POLS	313	American Constitutional Law	3
SOCA	311	Social Research Methods****	3
		*Restricted Elective(s)	6
			15

Eighth Semester

POLS	480	Senior Seminar	3
HUMS	489	Practicum Capstone Internship***	6
		Restricted Elective 300-level or above	3
			12

*May substitute higher level math
**May count as a GEC
***6 credit hours = 240 contact hours
****prerequisite of ECON 225 or STATS 211
(30 clock hours of community service must be completed, must be approved by the department chair and documentation must be shown-the student has an option to sign up for one credit hour of the community service course to fulfill this requirement).
Freshman and sophomores must have the permission of their advisor to enroll in 300 & 400 level courses.
Students may choose restricted electives in accounting, business, economics, political science, sociology, HUMS, Criminal Justice, History and other BHSS courses with permission of the advisor. These restricted electives will help to shape this degree into various fields of interest such as law, government careers, non-profit, etc.
Students may choose a minor by completing 18 hours and following the requirements in any field offered through the college of BHSS.

REGENTS BACHELOR OF ARTS-Major Code 024T

WVU Tech is a participating institution in the state-wide Regents Bachelor of Arts degree program. The program is designed for adults who wish to complete their college studies and offers an opportunity to gain credits for work and life experience, Students tailor their academic courses of study to meet their individual needs.

Degree Requirements

TOTAL CREDITS:		120 hours
UPPER DIVISION COURSES:		39 hours
GENERAL EDUCATION (no major field may be chosen):		36 hours, including:
Communications:	6	
Humanities:	6	
Natural Sciences:	6	
Social Sciences:	6	
Mathematics or Computer Application:	3	
WVU TECH GRADE POINT AVERAGE	2.0	
OVERALL GRADE POINT AVERAGE:	2.0	

Rule of Failing Grades: All Fs received four years or more prior to admission to the program are disregarded. Students who have received a second or third level academic suspension, however, are not eligible except by special petition to the Committee on Classification and Grades.

Residency: 24 hours earned in one or more of West Virginia's state-supported colleges or universities, including community colleges. At least 3 of the 24 graded hours must be completed at WVU Tech.

Grades and Grading: Same as other programs.

Admission

Admission and retention requirements are the same as for other degree programs except that students are not eligible for admission until at least four years after graduation from high school.

Students may not be enrolled simultaneously in the Regents degree program and another college degree program, and they are ineligible if they have already earned a bachelor's degree.

All passing grades from other accredited colleges, plus passing grades on CLEP and other college level tests will be accepted.

College Equivalent Credit

If they wish, students may prepare a work-and-life-experience portfolio that will be evaluated by qualified faculty members for college-equivalent credits. The college-equivalent credits are used in the Regents program to complete degree requirements. A fee of $300 will be charged regardless of the credits awarded. The same fee will be required each time students request subsequent evaluations. An additional fee of $10 will be charged for each credit hour awarded through the portfolio process. The fee is active for one year and will cover all portfolios submitted in that specific time period.

Areas of Emphasis

WVU Tech encourages the adult student in the Regents B.A. program to complete a focused area of education. The following areas of emphasis require the completion of 15 graded hours of related upper-division classroom work with a grade of C or better in each course.

- Creative Arts (course work may be selected from English, Art, Music, Drama, Languages)
- Health Care Services (from Human Services, Management Information Systems)
- Cultural Studies (from Sociology, History, Psychology, English, Art)
- Sciences (from Mathematics, Physics, Biology, Chemistry)
- Social Sciences (from Economics, History, Sociology, Political Science)
- Labor Studies (from Economics, History, Sociology, Political Science)
- Government (from Economics, History, Sociology, Political Science)
- Business (from Accounting, Finance, Management, Marketing, Information Systems)
- Information Studies (from Information Systems, Management, English, Speech)
- Organizational Management (BCOR 370, 350; MANG 422 & 330, & MKTG 485)
- Marketing (BCOR 350; MKTG 315, 380, 420 & 485)

FRAUD MANAGEMENT CERTIFICATION

Effective fall 2011, RBA students may choose to pursue a fraud management certification.

- Fraud Management (ACCT 420, 421, 422, 423, 348, & 449)
  Further information regarding this certification can be found under Accounting in the College of Business, Humanities and Social Sciences.

NOTE: Students should check the catalog to determine if pre-requisites are required for any of the above courses.

Program Learning Outcomes

- Consistent with what society expects of all adult workers and good citizens, the Regents graduate will be able to demonstrate a general education in communications, the humanities, social sciences, natural sciences, and mathematics/computer applications.
- The Regents graduate will be able to demonstrate a focused knowledge of one or more academic areas of his or her own choosing.

Tuition and Fees

There is no fee for admission into the program. For courses of study, students pay the same tuition as candidates in other degree programs.

A Second Degree

Students who receive a Regents baccalaureate degree may qualify for a second baccalaureate degree after one academic year. College equivalency credit received for life and work experience is applicable to no degree other than the Regents Bachelor of Arts.

For information, contact:

Frank D. Robbins, Interim Program Coordinator
WVU Institute of Technology
405 Fayette Pike
Montgomery, WV 25136
(304) 442-3005 Frank.Robbins@mail.wvu.edu
http://rba.wvutech.edu/

SPORT MANAGEMENT-Major Code 026T
Bachelor of Science

Sport Management is offered by WVU Tech through the West Virginia University College of Physical Activity and Sport Sciences. The program prepares graduates for careers in professional and collegiate sport organizations, fitness and recreational facilities, and sport-related businesses. Examples of career opportunities include directors of marketing and promotions, assistant general managers, school athletic directors, vice presidents of operations, compliance officers, and other positions. The baccalaureate program provides an excellent foundation for graduate education.

Upon meeting the University's general requirements for admission to the College of Business, Humanities and Social Sciences, the student is ordinarily admitted as a Pre-Sport Management major and completes a minimum of 58 credit hours, including a minimum of 21 hours of foundation courses and 37 hours of General Education Curriculum classes while maintaining an overall minimum 2.5 GPA. The following courses must be completed with a "C" or better before entering the Sport Management Major: (ENGL 101, COMM 100, COMM 102, University Math requirement, ACCT 201, ECON 201, JRL 101, and SM 167). Please note: Beginning with the Fall 2009 academic year, a grade of "B" or better must be earned in SM 167 for admission. Upon meeting these requirements, the student must complete an application for admission to the Sport Management program. Six hours of restricted electives must be completed from these courses: (ACCT 202, ECON 202, MKTG 380, BCOR 320, and FIN 325).

Program Learning Outcomes:

Graduates of Sport Management will:

- Recognize the importance and significance of the role of sport management
- Develop analytical and communication skills appropriate to the professional and corporate environment
- Be prepared to assume management positions in a variety of athletic and sport-related businesses and industries
- Be familiar with compliance programs at the collegiate and national athletic sport levels
- Recognize the importance of continuing emotional, intellectual, and physical development throughout their lives.

Once admitted to the Sport Management program, students must continue to meet University and program requirements, as well as, maintain satisfactory progress towards completion of the degree. If a student fails to meet these requirements once admitted to the program:

- The student will be placed on probation for one semester.
- The student's grades will be reviewed at the conclusion of the probation semester to determine their future status. Upon this review, the student will either be reinstated to or suspended from the program.

A student suspended from the program must seek another major immediately, as they will not be permitted to register for additional required Sport Management classes.

Pre-Sport Management Program-Major Code 026T
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	First Year Seminar (GEC 6)	1
SM	167	Introduction to Sport Studies	3
*GEC	2	Science/lab	4
*MATH	121	Basic Math (GEC 2)	3
			14

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
CS	101	Intro to Computer Appl (GEC 2)	4
*COMM	100	Prin of Human Comm (GEC 4)	1
*COMM	102	Human Communication (GEC 4)	2
*GEC	2	Science/lab option	3-4
JRL	101	Media & Society	3
			16-17

Third Semester

ACCT	201	Principles of Accounting	3
ECON	201	Prin of Microeconomics	3
SEP	271	Sport in American Society (GEC 7)	3
SPA	270	Effective Public Speaking	3
*HIST	179	World History to 1500 (GEC 3)	3
			15

Fourth Semester

**ACCT	202	Principles of Accounting	3
**ECON	202	Prin of Macroeconomics	3
SEP	272	Psych Perspect of Sport (GEC 6)	3
*HIST	180	World History Since 1500 (GEC 9)	3
GEC 8		Western Culture	3
			15

Sport Management Program

Fifth Semester

BCOR	350	Principles of Marketing	3
SM	370	Sport Finance	3
BCOR	370	Managing Individuals & Teams	3
SM	375	Sport in the Global Market	3
SM	340	Sport Governance	3
HUMS	320	Public Administration	3
			18

Sixth Semester

SM	380	History & Philosophy of Sport	3
*ARHS	101	Landmarks of World Art (GEC 5)	3
SM	345	Technology in Sport Management	2
SM	385	Sport Economics	3
SM	350	Leadership in Sport Management	2
SM	355	Orientation to Sport Management	1
		Elective(s)	3
			17

Seventh Semester

SM	425	Facility Planning	3
SM	426	Liability in Sport	3
SM	485	Sport Management	3
		Elective	3
		Elective	3
			15

Eighth Semester

SM	486	Sport Marketing	3
SM	487	Issues in Sport Studies (W)	3
SM	491	Internship Project	3
		Elective	3
		Elective	3
		Elective	3
			18

TOTAL CREDIT HOURS TO GRADUATE: 128-129
*Suggested GEC Courses. Other courses will substitute.
**Suggested Restricted electives. Other courses will substitute.
REQUIRED GEC Numbers are designated by ( ). (W) = Writing Course.

Minors

Accounting

Code UT01

18 semester hours to include:

ACCT 201	Principles of Accounting	3
ACCT 202	Principles of Accounting	3
ACCT 311	Intermediate Accounting	3

Plus three of the following courses:

ACCT 312	Intermediate Accounting	3
ACCT 348	Financial Statement Analysis	3
ACCT 432	Advanced Cost Management	3
ACCT 441	Income Tax Accounting	3
ACCT 442	Income Tax Accounting	3
ACCT 322	Accounting Systems	3
ACCT 491	Professional Field Experience	3

Business Administration*

Code UT03

24-25 semester hours as follows:

ACCT 201	Principles of Accounting	3
ACCT 202	Principles of Accounting	3
BCOR 350	Principles of Marketing	3
BCOR 370	Managing Individuals and Teams	3
BCOR 320	Legal Environment of Business	3
CS 101	Intro to Comp Applications (or MANG 353)	3-4
FIN 325	Financial Management 1	3
MANG 386	Business Statistics	3

*Course pre-requisites must be satisfied. The minor is not available to students who major in programs offered by the Department of Accounting/Finance or the Department of Management/Marketing.

Criminal Justice

Code UT21

15 semester hours to include:

CMJS 120	Survey of Criminal Justice	3
CMJS 133	Juvenile Justice	3

Plus nine (9) hours to be selected from:

ACCT 421	Fraud Mgt: Legal/Ethical Issues	3
CMJS 310	Law Enforcement Administration	3
CMJS 320	Courts and Judicial Systems	3
CMJS 410	Criminal Investigations	3
HUMS 320	Public Administration	3
POLS 313	American Constitutional Law	3
POLS 400	Terrorism and National Security	3
SOCA 302	Deviant Behavior	3
SOCA 311	Social Research Methods	3

Economics

Code UT05

18 Semester hours as follows:

ECON 201	Principles of Microeconomics	3
ECON 202	Principles of Macroeconomics	3
ECON 301	Intermediate Microeconomic Theory	3
ECON	Restricted Electives*	9

*Must include at least 9 hours of upper division courses.
*For Business Management majors, no more than 3 semester hours in Readings and Research will be counted toward the minor in Economics.

Finance

Code UT06

18 semester hours including:

FIN 325	Financial Management 1	3
FIN 326	Financial Management 2	3
FIN 310	Investments	3

Plus two of the following:

ACCT 491	Professional Field Experience	3
ECON 331	Money and Banking	3
FIN 321	Personal Finance	3
FIN 480	International Finance	3

Fraud Examination

Code UT07

18 semester hours including:

ACCT 201	Principles of Accounting	3
ACCT 348	Financial Statement Analysis	3
ACCT 420	Fraud Examination	3
ACCT 421	Fraud Mgmt: Legal/Ethical Issues	3
ACCT 422	Advanced Fraud Investigation/Analysis	3
ACCT 423	Information Security and Controls	3

History and Government

Code UT09

21 semester hours as follows:

POLS 102	Intro to American Government	3
POLS 300+		3
HIST 179	World History to 1500	3
HIST 180	World History since 1500	3
	or	
HIST 152	Growth of American Nation to 1865	3
HIST 153	Making of Modern America 1865-present	3

Plus 9 hours of History 200+ courses

Human Resources Administration*

Code UT10

18 semester hours as follows:

ECON 240	Introduction to Labor Unions	3
ECON 337	Industrial Relations	3
ECON 345	Labor Law	3
ECON 360	Employee Relations Law	3
ECON 430	Collective Bargaining	3
MANG 422	The Individual and the Organization	3

Marketing

Code UT13

18 semester hours to include:

BCOR 350	Principles of Marketing	3
MKTG 380	Integrated Promotions	3

Plus four of the following:

MKTG 325	Marketing Research	3
MKTG 315	Consumer Behavior	3
MKTG 485	Global Marketing	3
MKTG 410	Retail Management	3
MKTG 420	Sales Management	3

Political Science

Code UT16

18 semester hours including:

POLS 102	Intro to American Government	3
POLS 319	Comparative Government	3
POLS 313	American Constitutional Law	3

Plus 9 semester hours of POLS or HUMS courses with advisor approval
Must include at least 9 hours of upper division courses.

Professional Writing and Editing

Code UT23

15 semester hours to include:

Required Courses

ENGL 301	Writing Theory & Practice	3
ENGL 302	Editing	3

Plus three courses from the groupings below:

Business and Technical Writing

ENGL 304	Business and Professional Writing	3
ENGL 305	Technical Writing	3

Writing with Technology

ENGL 303	Multimedia Writing	3
OR		
ENGL 306	Topics In Humanities Computing	3

Linguistics

ENGL 221	The English Language	3
OR		
ENGL 321	The History of the English Language	3

Minimum 3.0 GPA in PWE courses

Psychology

Code UT17

18-19 semester hours including:

PSYC 101	Introduction to Psychology	3
PSYC 202	Research Methods in Psychology	3
PSYC 301	Biological Foundations of Behavior	3

	or	
PSYC 302	Behavioral Principles	4
Choose One:	PSYC 241, 251, 281	
Choose Two:	PSYC 331, 343, 351, 363, 382, 474, 493	
Minimum of "C" in all PSYC classes		

Risk and Insurance

Code UT18

18 semester hours including:

ACCT 423	Information Security & Control	3
ECON 331	Money and Banking	3
ECON 350	Principles of Risk & Insurance	3
FIN 321	Personal Finance	3
FIN 325	Financial Management 1	3
HUMS 330	Health Insurance	3

Sociology

Code UT19

18 semester hours including

SOCA 101	Introduction to Sociology	3

Must include at least 9 hours of upper division courses.
WGST 225 Women in Appalachia may be included as part of sociology minor

Sport Management

Code UT20

6 hours required in Business:

BCOR 350	Marketing	3
BCOR 370	Management	3

12 hours required in Sport Management:

SM 425	Facility Planning	3
SM 485	Sport Management	3
SM 486	Sport Marketing	3

Choose one class from the following:

SM 370	Sport Finance	3
SM 380	History & Philosophy of Sport	3

Total Hours Required 18

DEPARTMENT OF NURSING

Nursing, B.S.	019T
Pre-Nursing	020T

DEGREES OFFERED

The West Virginia University School of Nursing Bachelor of Science in Nursing (BSN) program is recognized by health care agencies as providing students with excellent preparation for the nursing profession. Graduates are in great demand and enjoy a large number of career opportunities. The program is fully accredited by the Commission of Collegiate Nursing Education of the American Association of Colleges of Nursing.

The program prepares college students to begin professional nursing practice with clients of all ages in any health care setting. Graduates are eligible for any position for the professional nurse at the start of his or her career. The program also provides an excellent foundation for graduate study in nursing. Students graduating from the program are eligible for licensure as registered nurses (RN) in West Virginia and all other states.

Candidates who are selected for the limited number of openings in the nursing program must meet the admission requirements of the WVU School of Nursing. Admission is on a competitive basis. Individuals who have a felony or serious misdemeanor conviction are NOT guaranteed entrance to health agencies for clinical experiences and are not guaranteed to be approved by the West Virginia Board of Examiners for Registered Professional Nurses to take the National Council for Licensure Examination for Registered Nurses (NCLEX). If felony convictions or serious misdemeanors preclude participation in clinical rotations, this could, in turn, prevent the completion of clinical course requirements, and completion of the nursing program.

On the WVUIT campus there are two options:

1. Basic BSN students are admitted to the WVUIT Department of Nursing at either the freshman level or the sophomore level after completing pre-requisite general education requirements. While freshman level general education requirements are generally completed at WVUIT, students may complete these courses at other accredited institutions and transfer to WVUIT upon admission to the BSN program.
2. The joint program between WVU School of Nursing/Glenville State College/and WVUIT is a program whereby students complete the first one year of study on the Glenville campus and admitted as sophomores to WVUIT to complete the nursing courses.

Bachelor of Science in Nursing (BSN)

The curriculum includes courses in the humanities, social sciences, basic sciences, and nursing science. These courses are taken in conjunction with nursing clinical courses. Students apply their learning to actual client, family, and community situations that warrant nursing intervention. In keeping with the University's commitment to improving health care for all West Virginians, all health sciences students complete a rural clinical practice during the senior year as part of the degree requirements.

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Outcomes of the BSN Program

This program has the following specific learning outcomes:

- Critical Thinking - Employs scholarly inquiry and evidence-based reasoning and creativity in the process of assessment, interpretation, analysis, synthesis, evaluation, and inference as a basis for professional nursing practice.
- Nursing Interventions - Ensures quality care by applying theory, evidence-based clinical judgment and decision making, and patient care technology in the delivery of safe and skilled nursing therapeutics with individuals, families, communities, and populations across the health-illness continuum.
- Professional Role - Demonstrates knowledge, attitudes, professional values, personal qualities and behaviors consistent with the nursing roles of health care designer and coordinator, organization and system leader, and advocate for consumers and the nursing profession.
- Caring - Provides empathetic, culturally sensitive, and compassionate care for individuals, families, communities, and populations that upholds moral, legal, and ethical humanistic principles.
- Communication - Integrates therapeutic, interpersonal, intraprofessional, interprofessional and informatics communication processes in professional nursing practice.

Admission Requirements

High School Seniors

Admission directly to the Nursing major is based on a combination of high school grade-point average and composite ACT or total SAT scores. Direct admission space is limited. High school students eligible for admission to the University are admitted directly into nursing if they meet the following criteria:

GPA	ACT	or	SAT
3.8 or higher	25 composite		1140 Combined Critical Reading and Math
3.6-3.79	26 composite		1180 Combined Critical Reading and Math
3.5-3.59	28 composite		1260 Combined Critical Reading and Math

High school students eligible for pre-nursing status will need to have the following requirements:

GPA	ACT	or	SAT
3.2 or higher	21 composite		990 Combined Critical Reading and Math
3.0-3.19	23 composite		1070 Combined Critical Reading and Math

College Students

High school students not eligible for direct admission and college students from other majors may apply for admission after one semester or more of college course work. Admission consideration in this case is dependent upon:

- **a minimum GPA of 3.0 on all college work attempted**
- **completion of required prerequisite courses from any accredited college or university with a grade of "C" or better**

Prerequisites: English Composition (3 cr.), Intro. to Psychology (3 cr.), Intro. to Nursing (2 cr.), College Algebra (3 cr.), Chemistry with lab (8 cr.), General Biology with lab (4 cr.), Anatomy and Physiology (4 cr.), Intro. to Sociology or Anthropology (3 cr.). Statistics is in the freshman progression plan, but is not a pre-requisite for admission to sophomore year. Introduction to Human Development and Nutrition are no longer pre-reqs. and are taken in the sophomore year.

Application forms can be obtained from the Department of Nursing at http://nursing.wvutech.edu or in Orndorff Hall room 2401 or email request to Julie.Wood@mail.wvu.edu.

Bachelor of Science in Nursing (BSN) Progression

To be in good academic standing, students:

- Must maintain an overall GPA of at least 3.0.
- May repeat only once a nursing course or a required pre- or co-requisite non-nursing course in which a grade of "D", "F", "W" or "WU" has been received.
- May repeat only one nursing course throughout the curriculum.
- Must complete with a grade of "C" or better any required nursing course or any required pre- or co-requisite non-nursing course in which a grade of "D", "F", "W", or "WU" has been received.

Progression Policies and Procedures for undergraduate Nursing students include:

- Students who do not maintain an overall GPA of at least 3.0 will be placed on probation for one semester.
- Students who do not raise their overall GPA to 3.0 after one semester on probation will be dismissed from the School of Nursing.
- Nursing courses and pre- and co-requisite courses in which students earn a grade of "D", "F", "W" or "WU" must be repeated prior to the student's progression to the next course in the nursing sequence. Nursing courses must be repeated in the next Spring or Fall semester that the course is offered.
- Students who repeat a nursing course or a required pre- or co-requisite non-nursing course and earn a grade of D, F, "W" or "WU" will be dismissed from the School of Nursing.
- Any general education course that is not a pre- or co-requisite of nursing courses and in which a grade less than "C" has been earned must be repeated for a grade of "C" or better if the course is to be counted toward graduation requirements.
- The above policies and academic standards also apply to freshman admitted directly to the Nursing major; however, direct admit freshmen have a maximum time of four regular semesters to complete freshman year requirements. Students who exceed this maximum time will be dismissed from the program. To progress to the sophomore year of the program, freshmen must have at least a 3.0 overall GPA, an overall GPA of 3.0 in prerequisite courses, and must have earned a "C" or better in all required freshman courses

Progression Plan Basic Nursing-Major Code 019T and Pre-Nursing Majors (BSN)-Major Code 020T

First Semester

+CHEM	111	Survey of Chemistry	4
+BIOL	111	General Biology	4
*+ENGL	101	Composition & Rhetoric (GEC 1)	3
*+PSYC	101	Introduction to Psychology	3
*+MATH	126	College Algebra	3
+WVUE	191	First Year Seminar	1
			18

Second Semester

+CHEM	112	Survey of Chemistry	4
+BIOL	230	Human Anatomy and Physiology 1	4
*+SOCA	101	Introduction to Sociology	3
or			
*+SOCA	105	Introduction to Anthropology	
+NSG	100	Introduction to Nursing	2
**STAT	211	Elem Statistics Inference	3
			16

Third Semester

NSG	211	Health Assessment & Comm	6 (4/2)
**ENGL	102	Composition & Rhetoric (GEC 1)	3
**BIOL	231	Human Anatomy & Phys 2	4
**HLSC	104	Nutrition	3
			16

Fourth Semester

NSG	212	Found of Nursing Practice	6 (4/2)
NSG	276	Intro Evid Based Practice & Res	3
**PSYC	241	Intro to Human Development	3
**BIOL	240	Microbiology	4
			16

Fifth Semester

NSG	311	Alterations in Adult Health 1	6 (3/3)
NSG	376	Clinical Nursing Pharmacology	3
NSG	310	Wom. Hlth Across Lifespan	4(2.5/1.5)
GEC	3	The Past & Its Traditions Elective	3
			16

Sixth Semester

NSG	312	Alterations in Adult Health 2	6 (3/3)
NSG	320	Child & Adolescent Health	4(2.5/1.5)
NSG	360	Ethics and Health Care Policy	3
GEC	5	Artistic Expression Elective	3
			16

Seventh Semester

NSG	450	Alt in Mental Health	4 (2.5/1.5)
NSG	411	Nursing in Cmplx Comm Sys	7 (3/4)
NSG		Nursing Elective	2
GEC	8	Western Culture Elective	3
			16

Eighth Semester

NSG	460	Care of Critically Ill Patient	4 (3/1)
NSG	412	Leadership in Complex Sys	7 (2/5)
NSG	486	NCLEX Review	1
GEC	9	Non-Western Culture Elective	3
			15

*Can be taken Fall or Spring Semester
+Required with grade of "C" or better before enrollment in sophomore nursing courses.
**Pre- or Co-requisites with sophomore courses. Must be completed with "C" or better to progress to junior level.
TOTAL CREDITS 129 – Nursing credits = 68
Non-nursing credits = 61

Leonard C. Nelson College of Engineering and Sciences

General Information

Mission of the Leonard C. Nelson College of Engineering and Sciences

The mission of the Leonard C. Nelson College of Engineering and Sciences of the West Virginia University Institute of Technology closely reflects the mission of the Institution. The programs in the College of Engineering and Sciences address the professional engineering and science needs of industry, government, and business and prepare their graduates to be citizens of the state, national, and global communities. The programs provide for a student-centered education that balances career preparation with an understanding and appreciation of the traditional humanities and sciences. The programs strive to prepare tomorrow's engineers and scientists with a broad education necessary to effectively communicate technical concepts to a wide audience and to place technical solutions in a societal context. In addition, the College of Engineering and Sciences gives qualified students the opportunity to gain valuable experience practicing the fundamentals of engineering and science through the Co-op program, as well as through the placement of students in intern positions.

The undergraduate programs in the Leonard C. Nelson College of Engineering and Sciences culminate in Bachelors of Science degrees by providing a quality, well-rounded education based on the knowledge of mathematics and science with applications to solving problems in engineering, design, discovery, innovation, and/or computer science. All programs impart the ability to use the tools of modern engineering and science in professional practice. The programs enhance the ability of the students to be critical thinkers, life-long learners, team players, and responsible and ethical citizens. The means to accomplish these goals are the faculty members who are dedicated to teaching, research and scholarship through disseminating knowledge, applying knowledge to new problems, generating new knowledge, and enhancing the methodology of education.

The College of Engineering and Sciences seeks to have all of its programs achieve (if not already accredited) and maintain national accreditation. The chemical, civil, electrical, computer, and mechanical engineering programs and the electronics engineering technology, civil engineering technology, and mechanical engineering technology programs are accredited by the ABET.

The College of Engineering and Sciences also seeks to enhance the economic development of the community and improve the quality of life in the region through educational and intellectual opportunities. The College of Engineering and Sciences addresses the needs of West Virginians to have access to engineering and computer science education. Examples of this access include the following:

- Placing students who do not meet the necessary requirements for a degree program into WVU Tech's Pre-engineering Program or the Interdisciplinary Studies Program where their progress can be carefully monitored and improved to meet the necessary admission requirements.
- Providing professional development and continuing education opportunities.

- Developing articulation agreements with schools housing pre-engineering, math and science programs and community colleges
- Offering the first two years of some engineering programs such as Aerospace so that students can study at WVU Tech and then transfer to WVU.
- Developing web-based, web-enhanced, and interactive video courses for distance delivery.

The Leonard C. Nelson College of Engineering and Sciences collaborates with the main campus of West Virginia University by the exchange of courses, mutual offering of degree programs and joint research projects with faculty at both campuses. The College of Engineering and Sciences also collaborates with other institutions in the state, as well as regional industries and businesses through educational offerings and research and development projects. The College of Engineering and Sciences seeks to attract and retain highly capable students and faculty and to foster intellectual, professional, and personal growth of its students and faculty in an open, ethical, and stimulating environment characterized by an appreciation for excellence, diversity, personal respect, and frequent collegial interactions.

Faculty Activities

The College of Engineering and Sciences is well equipped for study and research in engineering and computer science. WVU Tech has approximately 180,000 square feet of laboratory space. Of the engineering and science full-time faculty, over 90% are Ph.D.'s trained at some of the best institutions in the United States and abroad. In addition, over 40% of the engineering specific faculty are registered professional engineers (P.E.'s) or professional surveyors (P.S.'s).

The engineering and science faculty participate in research and professional activities that reflect the "engineering practice" and "scientific inquiry" character of the institution.

Many of the faculty have worked full-time or consulted with industry or at federal laboratories. Thus their research interests are off-campus and help to bring industry and government researchers in contact with our academic programs. A group of faculty have ongoing research programs on campus that usually offer our undergraduate students the chance to participate in meaningful research and publication. There has been a significant increase in research activities among faculty in the College of Engineering and Sciences in recent years. Major research programs have been funded by DoD, DoE, CAST, and WVEPSCoR. A continuing program to assist industry by performing energy audits of factories (funded by the West Virginia Development Office) is also funded every year.

About the College of Engineering and Sciences

The Leonard C. Nelson College of Engineering and Sciences offers degrees in:

Bachelor of Science

Chemical Engineering *
Computer Engineering*
Civil Engineering *
Electrical Engineering *
Mechanical Engineering *

Bachelor of Science
- Biology
- Chemistry
- Computer Science
- Information Systems
- Mathematics

Bachelor of Science
- Engineering Technology*
- Engineering Technology - Civil Engineering Emphasis*
- Engineering Technology - Mechanical Engineering Emphasis*
- Engineering Technology – Environmental Engineering Emphasis*
- Electronics Engineering Technology *
- Industrial Technology

**ABET Accredited program*

The College of Engineering and Sciences provides the first two years of Aerospace Engineering with the last two years to be taken at WVU.

WVU Tech has a student enrollment of approximately 1200 students and there are about 500 students enrolled in engineering or science. Overall, WVU Tech has a student-faculty ratio of about 12:1 so that students can receive individual attention and experience an open and friendly learning environment. Of the students enrolled at WVU Tech, 32 foreign countries and 25 states are represented with approximately 80% residents of West Virginia.

Engineering Transfer Program and Evaluation of Transfer Credits

The Leonard C. Nelson College of Engineering and Sciences encourages qualified students from pre-engineering programs to transfer to West Virginia University Institute of Technology. Most students who have completed a pre-engineering program can complete their degree requirements in four semesters and one summer session at WVU Tech.

While it is a common practice for students to transfer from a pre-engineering program into any of the engineering and computer science programs, WVU Tech requires special care when evaluating the courses taken at other institutions to maintain accreditation standards. To maintain accreditation standards, the Leonard C. Nelson College of Engineering and Sciences strives to ensure the integrity of the courses transferred into the program. The College of Engineering does not have articulation agreements with every school; therefore, it must be careful when evaluating credits taken elsewhere to substitute for WVU Tech courses. Due to the requirement of ABET for assessing learning outcomes, a transfer student must spend enough time at WVU Tech so that the learning outcomes can be measured and validated. Therefore, WVU Tech has set the requirement that all transfer students take at least 24 credit hours of upper division (300+) courses in their major field. Transfer students must also take (as part of the 24 credit hours) the required capstone design course(s). Such courses are often listed as "Senior Design," "Systems Design," "Senior Seminar," or "Senior Projects." For example, if a student is transferring into the chemical engineering program at WVU Tech, then he/she must take at least 24 credit hours of chemical engineering courses at the 300 or 400 level and must take CHE 457 Design Lab 3 and CHE 458 Design Lab 4 (which can be part of the 24 credit hours).

In the evaluation of courses to be transferred, the College of Engineering and Sciences will follow several guidelines.

- Transfer students must supply official transcripts. In some cases, the College of Engineering and Sciences will ask for further documentation in order to evaluate transfer courses. A school catalog may be sufficient in some situations. In other cases the College of Engineering and Sciences will ask for documentation that explicitly states the detailed topical outline; prerequisites and co-requisites; days and times of the lectures; days and times of the laboratories; the author and title of each textbook used for the course; and a detailed listing of the tests, homework, projects, and final exams.
- The College of Engineering and Sciences will not equate a WVU Tech course that has a laboratory component to a course that does not have a lab component. In some cases, a combination of a lecture course and lab course will be equated to a WVU Tech course with both components.
- The College of Engineering and Sciences will not substitute technology courses for engineering courses except at the discretion of the department housing the program that the student is transferring into and with the final approval of the Dean of the College of Engineering and Sciences.
- If adequate documentation for a course cannot be supplied, the transfer student may request to take an examination to be exempt from taking the WVU Tech course. The department that offers the course in question has the discretion not to give such an examination.
- In some cases, the transfer of a course is conditioned upon successfully completing another course(s). The College of Engineering and Sciences will determine these conditions on a case-by-case basis.
- In general, lower division courses will not be equated to upper division courses. In some cases, the level of the course may be determined by course content and prerequisites rather than by course number. For example, if a math course has a 300 number but its prerequisites do not include calculus, then it will not be equated to a similarly-named, WVU Tech 300-level math course that does require calculus.
- The College of Engineering and Sciences will only accept calculus-based physics for its engineering programs.
- All other policies and rules of the institution must also be followed.

Transfer students may appeal their evaluation of courses by supplying further documentation within their first semester of studies at WVU Tech.

Engineering Technology Programs Baccalaureate Degrees

Graduates of associate of science degree programs in engineering technology may earn Bachelor of Science degrees at WVU Tech by completing one of this institution's plus-two baccalaureate programs. The plus-two baccalaureate programs are designed to meet the needs of associate degree engineering technology graduates for advanced education in a chosen area of emphasis. These programs prepare graduates for immediate employment in engineering-oriented occupations in industry and provide the education needed to achieve greater upward career mobility in technology related fields.

Graduates of associate-degree engineering technology related programs at other institutions are encouraged to enroll in these programs also. For transfer students, an evaluation of the students' transcript is made to determine if additional course work is needed to prepare for the technical courses found in the plus-two curriculum. Many of these students enter WVU Tech as juniors in the plus-two baccalaureate programs. All students must meet the General Education Core Curriculum requirements for graduation. The following baccalaureate degree programs are offered at WVU Tech:

Electronic Engineering Technology, B.S.E.E.T. - Students enter the program upon completion of an A.S. degree Electrical/Electronic (Engineering) Technology program.

Engineering Technology-Civil, B.S.C.E.T. – Students enter this program upon completion of an A.S. civil-related technology program.

Engineering Technology-Environmental, B.S.E.T.E. - The environmental emphasis may be pursued by students from a variety of backgrounds, including chemical, civil, environmental science/technology, and mechanical.

Engineering Technology-Mechanical, B.S.M.E.T. - Students may enter this program upon completion of an A.S. mechanical-related technology program.

Engineering Technology, B.S.E.T. – Students may enter this program upon completion of one of a variety of technology-related programs. This program can be tailored to a student's specific career interests.

Industrial Technology, B.S.I.T. – The industrial technology is a broad-based application oriented program designed to prepare graduates to work in a variety of manufacturing, construction, business, and management type occupations. Students may enter this program upon completion of one of a variety of technology-related programs.

Aerospace Engineering
Bachelor of Science
A 2+2 Program offered with West Virginia University (Morgantown)

West Virginia University Institute of Technology (WVU Tech) and West Virginia University (WVU) have joined their resources to offer a 2+2 aerospace program, (two years each at Montgomery and Morgantown), leading to a Bachelor of Science in Aerospace Engineering degree. Under this arrangement, a student interested in a BSAE degree from WVU, can start as a freshman at WVU Tech in Mechanical Engineering, complete the appropriate courses in four semesters with a GPA of at least 2.0 at Montgomery and transfer to the Mechanical and Aerospace Engineering (MAE) Department at Morgantown. Upon completion of the appropriate curriculum requirements, as indicated in the pattern sheet below and the WVU catalog during the following four semesters at Morgantown, he/she will receive a BSAE degree from WVU.

Air travel has fascinated humans for a long time. Recent technical advances in aerospace travel, space exploration, and flight of manned and unmanned vehicles have been phenomenal and continue to gain in significance. Aerospace engineering deals with the science and technology of airborne and space vehicles such as airplanes, rockets, missiles and spacecraft. Aerospace technology has also been successfully adopted to improve the performance of many earth-bound vehicles such as hydrofoil ships, high-speed trains and automobiles.

The Aerospace Engineering program at WVU is designed to prepare the student for a career in the aerospace industry or in the government research and development centers and laboratories, as well as in military mission-oriented agencies. The undergraduate curriculum also allows the student to prepare for graduate studies in aerospace engineering and in other engineering, as well as non-engineering fields.

The Aerospace curriculum includes studies in the disciplines encountered in the design of aerospace vehicles, missiles, rockets and spacecraft. The undergraduate curriculum includes extensive study of the basic principles of fluid dynamics, solid mechanics and structures, stability and control, thermal sciences and propulsion.

The student is involved in both theoretical and experimental studies, and is trained to integrate basic knowledge of physical and engineering sciences with practical engineering design. With the breadth and depth of education in aerospace engineering, the student becomes a versatile engineer, competent to work in many areas. The curriculum may serve as a terminal program by incorporating design oriented courses for technical electives, or it may be used as a preparatory program for advanced study by the selection of science oriented courses.

Students can also pursue simultaneously B.S. degrees in both aerospace engineering and mechanical engineering by completing additional courses. Information on this 158 credit hour option can be obtained from the Mechanical/Aerospace Engineering Department at WVU.

The student should refer to the University catalog and relevant WVU publications for additional information on the graduation requirements.

Aerospace Engineering
B.S.A.E. 2+2 with West Virginia University

First Semester (Montgomery)

ENGL	101	Composition & Rhetoric	3
WVUE	191	Freshman Seminar (GEC 6)	1
MATH	155	Calculus 1	4
CHEM	115	Chemistry I	4
DRET	120	Drafting I	2
GEC	3	The Past & Its Traditions Elective[1]	3
			17

Second Semester (Montgomery)

ENGL	102	Composition & Rhetoric	3
ENGR	111	Software Tools for Engineers	3
MAE	241	Statics	3
MATH	156	Calculus II	4
GEC	5	Artistic Expression Elective	3
			16

Third Semester (Montgomery)

MAE	242	Dynamics	3
MAE	243	Mechanics of Materials	3
MATH	251	Multivariable Calculus	4
PHYS	111	General Physics I	4
GEC	6	The Individual in Society Elective[1]	3
			17

Fourth Semester (Montgomery)

MAE	331	Fluid Mechanics	3
MAE	332	Thermodynamics	3
MATH	261	Elem Differential Equations	4
PHYS	112	General Physics II (GEC 2)	4
ECON	201	Microeconomics (GEC 4/8)	3
			17

Fifth Semester (Morgantown)

MAE	215	*Intro to Aerospace Engr	3
MAE	316	Analysis of Engineering Systems	3
MAE	335	*Incompressible Aerodynamics	3
MAE	343	Intermed Mechanics of Materials	3
ECON	202	Macroeconomics (GEC 4/8)	3
			15

Sixth Semester (Morgantown)

MAE	336	*Compressible Aerodynamics	3
MAE	345	*Aerospace Structures	3
MAE	365	*Flight Dynamics	3
MAE	244	Dynamics & Strength Lab	1
EE	306	Basic Electrical Engineering	3
EE	307	Basic Electrical Engineering Lab	1
GEC	7	American Culture Elective	3
			17

Seventh Semester (Morgantown)

MAE	426	*Flight Vehicle Propulsion	3
MAE	434	*Experimental Aerodynamics	2
MAE	456	CAD/Finite Element Analysis	3
MAE	476	**Space Flight and Systems*	3
		**#1 Technical Elective(s)	3
			14

Eighth Semester (Morgantown)

MAE	423	Heat Transfer	3
MAE	460	Automatic Controls	3
MAE	475	*Flight Vehicle Design	3
GEC	9	Non-Western Culture Elective	3
		**#2 Technical Elective(s)	3
			15

**Taught at WVU campus only in the semester indicated.*

i** Six hours of technical electives must be selected from a list of approved Aerospace Engineering technical electives after consulting with the advisor; the courses selected should form a clear and consistent pattern according to the career objectives of the student.
ii 21 hours of **General Education Curriculum *(GEC 3,5,6,7,8, and 4/8 ECON 201 & 202)*** courses must be selected from the approved list of courses to meet the University and the college GEC requirements. All electives must be approved by your advisor.

Chemical Engineering
Bachelor of Science

The Chemical Engineering program emphasizes undergraduate instruction. Graduates of this program have the skills and knowledge to become effective professional practitioners in a variety of industries and service organizations, as well as to be successful in programs of advanced study.

The Chemical Engineering department supports the development of West Virginia, the nation, and the global community by educating graduates who are employed in organizations that significantly contribute to the well-being of humanity.

This mission is fulfilled by the achievement of the following program objectives:

- Program graduates will find employment in the energy, chemical, materials processing, biotechnology, and related industries. They may take positions in manufacturing, design, environmental affairs, technical service, and technical sales.
- Program graduates will progress into positions having significant professional responsibilities. These responsibilities may include management and supervisory duties, significant contributions on projects having value to the employer, and entrepreneurial activity.
- Program graduates will have the preparation to continue with advanced study. This may include graduate work in engineering, business, or the sciences, as well as the study of medicine or law.

In order to achieve the educational objectives, the academic program will produce the following outcomes. Our graduates will be able to:

- Use the principles of chemistry, physics, and mathematics in the solution of engineering problems.
- Use engineering science – conservation relations, thermodynamics, transport phenomena, and kinetics - in the solution of engineering problems.
- Design systems and products that meet economic, quality, safety, and environmental requirements.
- Use creativity and synthesis skills in the solution of open-ended problems.
- Devise experiments, to use principles of experimental design, to collect data effectively, to evaluate data using appropriate statistical tools, and to draw sound conclusions from the analysis.
- Use computing tools – mathematical analysis, information retrieval, document preparation, and communications.
- Apply good safety practices and practice good environmental stewardship in both laboratory and design work.
- Effectively communicate ideas, plans, and research in verbal and written form.
- Gain new knowledge and/or enhance their skills through independent learning.
- Work effectively as an individual and as a team member.
- Apply professional codes of conduct to resolve ethical dilemmas.
- Assess the political, cultural, economic, and aesthetic aspects of engineering practice, and to recognize the potential impact of technological developments on current events.

These outcomes are achieved through rigorous courses in mathematics, chemistry, physics, chemical engineering, and the humanities and sciences. Electives in other disciplines are required, enabling graduates from this program to work effectively with professionals having other areas of expertise.

An emphasis track in the life sciences is available for those students who have an interest in the medical or biotechnology fields. This track contains four additional credit hours beyond the standard curriculum, but includes a minor in Biology along with the B.S. degree in Chemical Engineering. Students are to consult with their advisor concerning elective sequences in other areas such as management, environmental protection, public policy, etc. A number of options are available, and many are outlined in the Chemical Engineering Student Handbook.

Chemical Engineering
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric[4]	3
CHE	100	Intro to Chemical Engineering	2
CHEM	115	Fundamentals of Chemistry I	4
MATH	155	Calculus I[2]	4
WVUE	191	First Year Seminar	1
			14

Second Semester

ENGL	102	Composition & Rhetoric[4]	3
ENGR	111	Software Tools for Engineers	3
CHEM	116	Fundamentals of Chemistry II	4
MATH	156	Calculus II[2]	4
GEC	4	Contemporary Society[1]	3
			17

Third Semester

CHE	201	Material and Energy Balances I	3
CHEM	233	Organic Chemistry I	3
CHEM	235	Organic Chemistry I Lab	1
MATH	251	Multivariable Calculus	4
PHYS	111	General Physics I[2]	4
GEC	5	Artistic Expression Elective[1]	3
			18

Fourth Semester

CHE	202	Material and Energy Balances II	3
CHEM	234	Organic Chemistry II	3
BIOL	240	Microbiology	4
PHYS	112	General Physics II[2]	4
GEC	3	The Past and Its Traditions[1]	3
			17

Fifth Semester

CHE	316	Transport Operations	4
CHE	330	Modeling and Analysis	3
CHE	320	Chemical Engr Thermodynamics	3
CHE	357	Design Laboratory 1	1
GEC	6	The Individual in Society Elective[1]	3
		Enhancement Elective[3]	3
			17

Sixth Semester

CHE	312	Separation Processes	4
CHE	327	Kinetics & Reactor Design	3
CHE	350	Chemical Engineering Laboratory	2
CHE	318	Particle Processing Operations	2
CHE	358	Design Laboratory 2	1
GEC	7	American Culture Elective[1]	3
		Enhancement Elective[3]	3
			18

Seventh Semester

CHE	457	Design Laboratory 3	2
CHE	450	Unit Operations Lab 1	2
CHE	435	Chemical Process Control	3
GEC	8	Western Culture Elective[1]	3
		Advanced Science Elective	4
		Enhancement Elective[3]	3
			17

Eighth Semester

CHE	458	Design Laboratory 4	2
CHE	451	Unit Operations Lab 2[4]	2
ENGR	401	Senior Seminar	1
CHEM		Adv. Chemistry Elective	3
GEC	9	Non-Western Culture Elective[1]	3
		Chemical Engineering Elective[3]	3
		Enhancement Elective[3]	3
			17

Notes:

[1] Students must check the WVU Tech Catalog for core requirements.
SPA 270 must be taken as a GEC 4 or 6 elective

[2] Courses satisfy GEC Objective 2

[3] Chemical and Enhancement electives must be selected with advisor approval.

[4] Courses satisfy GEC Objective 1. CHE 451 is certified as a writing class by the WVU Faculty Senate.

Chemical Engineering
Bachelor of Science
Life Sciences Emphasis Track (Includes Biology Minor)

First Semester

ENGL	101	Composition & Rhetoric[4]	3
CHE	100	Intro to Chemical Engineering	2
CHEM	115	Fundamentals of Chemistry I	4
MATH	155	Calculus I[2]	4
WVUE	191	First Year Seminar	1
BIOL	111	General Biology	4
			18

Second Semester

ENGL	102	Composition & Rhetoric	3
ENGR	111	Software Tools for Engineers	3
CHEM	116	Fundamentals of Chemistry II	4
MATH	156	Calculus II[2]	4
BIOL	112	General Biology	4
			18

Third Semester

CHE	201	Material and Energy Balances I	3
CHE	233	Organic Chemistry I	3
CHEM	235	Organic Chemistry I Lab	1
MATH	251	Multivariable Calculus	4
PHYS	111	General Physics I[2]	4
GEC	5	Artistic Expression Elective[1]	3
			18

Fourth Semester

CHE	202	Material and Energy Balances II	3
CHEM	234	Organic Chemistry II	3
PHYS	112	General Physics II[2]	4
BIOL	240	Microbiology	4
GEC	3	The Past & Its Traditions Elective[1]	3
			17

Fifth Semester

CHE	316	Transport Operations	4
CHE	330	Modeling and Analysis	3
CHE	320	Chemical Engr Thermodynamics	3
CHE	357	Design Laboratory 1	1
BIOL	416	Cell Biology(5)	4
GEC	6	The Individual in Society Elective[1]	4
			18

Sixth Semester

CHE	312	Separation Processes	4
CHE	327	Kinetics & Reactor Design	3
CHE	350	Design and Analysis of Expts.	2
CHE	358	Design Laboratory 2	1
CHE	318	Particle Processing Operations	2
GEC	4	Contemporary Society Elective[1]	3
			15

Seventh Semester

CHE	457	Design Laboratory 3	2
CHE	450	Unit Operations Lab 1	2
CHE	435	Chemical Process Control	3
BIOL		Biology Elective	4
BIOL		Biology Elective	4
GEC	8	Western Culture Elective[1]	3
			18

Eighth Semester

CHE	458	Design Laboratory 4	2
CHE	451	Unit Operations Lab 2[4]	2
ENGR	401	Senior Seminar	1
CHEM	451	Biochemistry	3
CHE		Chem Engr Elective[3]	3
GEC	7	American Culture Elective[1]	3
GEC	9	Non-Western Culture[1]	3
			17

(1) Students must check the WVU Tech Catalog for core requirements
SPA 270 must be taken as a GEC 4 or 6 elective.
(2) Courses satisfy GEC Objective 2
(3) Chemical Engineering and Biology electives must be selected with advisor approval.
(4) Courses satisfy GEC Objective 1. CHE 451 is certified as a writing class by the WVU Faculty Senate.
(5) Courses may need to be rearranged to accommodate alternate year offerings.

Civil Engineering
Bachelor of Science

Civil Engineering, the most diverse branch of engineering, is directly related to the planning, design, construction, and maintenance of the infrastructure that directly affects public life. The infrastructure includes bridges, buildings, foundations, dams, sanitary and solid waste disposal systems, highways, airport facilities, transportation systems, waterways, hydroelectric installations, pipelines, coal preparation and loading facilities, and other systems and structures. Civil engineering also involves the understanding of environmental issues and geotechnical principles and how they relate to the design of the infrastructure.

Engineering students get a sound basic knowledge of science and a set of core courses in the humanities and social sciences. The Civil Engineering curriculum has been designed to give the student a broad coverage of all fields of civil engineering with some flexibility to explore a particular field of choice. This approach gives the WVU Tech graduate a well-rounded background to handle civil engineering projects.

Design is incorporated across the Civil Engineering curriculum with the design experience beginning early with the Surveying and Mechanics of Materials courses. Design exposure continues in the junior and senior years, with a minimum of 11 courses having design components for a total of 17.5 credit hours of design. Design content is incorporated in the required courses such as Introductory Soil Mechanics, Hydraulic Engineering, Construction Materials, Transportation Engineering, Introduction to Environmental Engineering, the required structural design elective (Steel Design or Reinforced Concrete Design), the required geotechnical elective (Foundation Engineering, Earthwork Design, or Groundwater and Seepage), the required environmental elective (Advanced Sanitary Engineering, Solid Waste Management, Engineering Hydrology, or Advanced Hydraulic Engineering), and the required transportation elective (Highway Engineering, Pavement Design, or Traffic Engineering). Two additional electives (one CE Elective and one Technical Electives) must contain a minimum total of two credit hours of design content.

The design component is completed with a capstone design course (Integrated Civil Engineering Design) in which student teams are responsible for the completion of a comprehensive civil engineering project which involves several civil engineering disciplines with oral and written presentations of the project. Discussion and consideration of constraints such as economic factors, safety, reliability, aesthetics, ethics, and environmental impact are incorporated as a normal part of most design courses. Aesthetics and environmental impact are stressed in the Introduction to Environmental Engineering course; and ethics, safety, and professional issues are covered in the Senior Engineering Seminar course. In addition to design, the Integrated Civil Engineering Design course includes principles of project and/or construction management, cost analysis and estimating, and scheduling.

Program Mission/Goals

- To prepare students to be able to apply science and mathematics to the analysis of civil engineering problems and the design of infrastructure systems to increase human welfare and promote sustainable development.
- To prepare well-rounded students to practice engineering in a professional environment and to be successful in graduate school should they choose to attend.

- To help students recognize the role of the civil engineer in contemporary society, especially with respect to the societal and environmental contexts of civil engineering projects.
- To energize students to maximize individual potential, including acquisition of necessary skills and recognition of the need for continuing education and lifelong growth and development.

Educational Objectives

- Our graduates will obtain employment in the civil engineering field and will hold positions having significant professional responsibility.
- Our graduates will obtain professional registration.
- Our graduates will be prepared academically and those who choose advanced studies will be successful.
- Our graduates will be equipped to learn new skills as they progress in their careers and, as a result, will possess the capabilities to move to positions having increased leadership, mentoring, and management responsibilities.

Program Outcomes

To meet the educational objectives, the Civil Engineering Program will achieve and continually assess thirteen outcomes. In achieving these program outcomes, our graduates will demonstrate:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as to analyze and interpret data.
- An ability to design civil engineering projects or components of projects to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multi-disciplinary teams.
- An ability to identify, formulate, and solve civil engineering problems.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- A recognition of the need for, and an ability to engage in life-long learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- An ability to apply sound safety practices in laboratory and design work.
- An ability to develop and manage budgets and schedules.

These program outcomes are achieved by graduates through a solid grounding in mathematics, chemistry, and physics along with a strong understanding of basic engineering principles. Added to this is a broad exposure to the humanities and social sciences and an extensive development of the fundamentals of material science, environmental, geotechnical, hydrotechnical, structural, and transportation engineering. Specialization in one or more branches of civil engineering is possible by a selection of civil engineering and technical electives during the junior and senior years.

Civil Engineering
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric	3
WVUE	191	First Year Seminar	1
CHEM	115	Fundamentals of Chemistry I	4
DRET	120	Drafting I	2
MATH	155	Calculus I	4
GEC	3	The Past and Its Traditions	3
			17

Second Semester

ENGL	102	Composition & Rhetoric	3
MAE	241	Statics	3
ENGR	111	Software Tools for Engineers	3
CHEM	116	Fundamentals of Chemistry II	4
MATH	156	Calculus II	4
			17

Third Semester

MAE	242	Dynamics	3
MAE	243	Mechanics of Materials	3
CE	204	Surveying	3
MATH	251	Multivariable Calculus	4
PHYS	111	Physics for Scien & Engr I	4
			17

Fourth Semester

MAE	331	Fluid Mechanics	3
CE	361	Structural Analysis I	4
CE	331	Transportation Engineering	3
MATH	261	Elem Differential Equations	4
GEOL	312	Geology	3
			17

Fifth Semester

CE	312	Construction Materials	3
CE	421	Hydraulic Engineering	4
MATH	448	Probability and Statistics	3
CE		Elective	3
SPA	270	Effect Public Speaking (GEC 6)	3
			16

Sixth Semester

CE	351	Introductory Soil Mechanics	4
ECON	201	Prin of Microeconomics	3
CE	347	Intro Environmental Engr.	4
ENGL	305	Technical Writing	3
CE		Elective	3
			17

Seventh Semester

CE		Elective	3
CE		Elective	3
ECON	401	Managerial Economics (GEC 4)	3
GEC	5	Artistic Expression Elective	3
GEC	7	American Culture Elective	3
			15

Eighth Semester

ENGR	401	Senior Engineering Seminar	1
ENGR	402	Fund of Engineering Review	2
CE	479	Integrated CE Design	3
CE		Elective	3
GEC	9	Non-Western Culture Elective	3
		Technical Elective*	3
			15

*Technical Electives must be approved by Civil Engineering Department

Note:
1. Four CE electives, one each from structures, environmental, transportation and geotechnical are required.
1. One CE Elective and one Technical Elective (approved by Dept.) are also to be taken. These two courses must contain at least 2 credit hours of combined ABET design content.

CE Electives

CE 411	Pavement Design (2)	CE 451	Foundation Engineering (2.5)
CE 422	Adv. Hydraulic Engineering (1.5)	CE 452	Groundwater & Seepage (1.5)
CE 425	Engineering Hydrology (1)	CE 453	Earthwork Design (2)
CE 431	Highway Engineering (2)	CE 461	Structural Analysis 2 (1)
CE 432	Traffic Engineering (2)	CE 462	Reinforced Concrete Design (3)
CE 444	Adv. Sanitary Engineering (2)	CE 463	Steel Design (3)
CE 446	Solid Waste Management (1.5)	CE 464	Timber Design (2)
		CE 497	Research (0)

** Number in parenthesis () denotes hours of design content

Computer Engineering
Bachelor of Science

The effects of computer engineering are seen in all facets of our lives. Computer engineers develop systems that can perform very useful operations such as what can be found in high-end computers, devices for networking switches and hubs and for manufacturing control, and systems in automobiles, fax machines, and microwave ovens. Even cell phones have sophisticated computational operations that provide useful features and capabilities, and the work of computer engineers has enabled this technology to be readily available.

The Bachelor of Science in Computer Engineering degree program provides our students with the knowledge and skills to ensure successful employment and advancement as an engineer, as well as, to pursue further education if the graduate chooses to do so. We give our students a solid foundation in mathematics and the sciences with a special emphasis on the fundamentals of computer science and electrical engineering relevant to computer engineering. We provide the general education to put the technical knowledge into perspective. The student can pursue special areas of interest through several elective courses. Upon graduation the student will be well prepared to be successful and productive in the workforce.

One of the key features of engineering that sets it apart from other disciplines is design. Design is the creative process of putting ideas, components, and systems together to develop solutions to problems and needs. The curriculum encourages design-oriented thinking at a fundamental level and culminates in the capstone senior design course sequence in which many factors such as technical, economic, environmental, ethical and legal, health and safety, manufacturability, political, social, sustainability, and realistic standards are considered. The program further encourages the development of good communication skills in written, oral and electronic forms.

Educational Objectives

We desire that students after graduation accomplish one or more of the following objectives:

- **Professional Practice**
  Computer engineering graduates will be successful in professional practice in engineering.
- **Post-graduate Education**
  Computer engineering graduates will be successful in pursuing advanced education.
- **Advancement**
  Computer engineering graduates will successfully advance in their careers.

Program Outcomes

- **Engineering Science**
  Students will attain an ability to apply knowledge of mathematics, science, and engineering.

- **Engineering Experimentation**
  Students will attain an ability to design and conduct experiments, as well as to analyze and interpret data.
- **Engineering Design**
  Students will attain an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- **Teamwork**
  Students will attain an ability to function on multidisciplinary teams.
- **Problem Solving**
  Students will attain an ability to identify, formulate, and solve engineering problems.
- **Engineering Ethics**
  Students will attain an understanding of professional and ethical responsibility.
- **Effective Communication**
  Students will attain an ability to communicate effectively.
- **Impact of Engineering**
  Students will attain the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- **Life-long Learning**
  Students will attain a recognition of the need for, and an ability to engage in life-long learning.
- **Contemporary Issues**
  Students will attain a knowledge of contemporary issues.
- **Modern Tools**
  Students will attain an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Computer Engineering
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
MATH	155	Calculus I (GEC 2)	4
WVUE	191	First Year Seminar	1
CS	121	Computer Science 1	4
CHEM	115	Chemistry I	4
			16

Second Semester

ENGL	102	Composition & Rhetoric	3
MATH	156	Calculus II (GEC 2)	4
CS	122	Computer Science 2	4
ENGR	101	Engineering Problem Solving I	2
GEC	3	Past and Its Traditions	3
GEC	5	Artistic Expression Elective	3
			18

Third Semester

MATH	251	Multivariable Calculus	4
PHYS	111	General Physics (GEC 2)	4
EE	200	ECE Software Tools	2
EE	221	Introduction Electrical Engineering	3
EE	222	Intro Electrical Engineering Lab	1
CS	201	Data Structures	3
			17

Fourth Semester

MATH	261	Differential Equations	4
PHYS	112	General Physics (GEC 2)	4
EE	223	Electrical Circuits	3
EE	224	Electrical Circuits Lab	1
CPE	271	Digital Logic Design	3
CPE	272	Digital Logic Design Lab	1
			16

Fifth Semester

EE	355	Analog Electronics	3
EE	356	Analog Electronics Lab	1
EE	327	Signals & Systems I	3
CPE	310	Microprocessor Systems	3
CPE	311	Microprocessor Systems Lab	1
MATH	448	Probability & Statistics	3
GEC	6	The Individual in Society Elective	3
			17

Sixth Semester

EE	311	Junior Instrumentation Lab	1
ENGL	305	Technical Writing	3
ECON	401	Managerial Economics (GEC 4)	3
CPE	421	Embedded Systems	4
CS	222	Introduction Software Engineering	3
MATH	378	Discrete Mathematics	3
			17

Seventh Semester

EE	480	Senior Design Seminar	3
CPE	442	Computer Architecture	3
CPE		Computer Engr Elective(2)	3
CS	263	Introduction to Networking	3
GEC	7	American Culture Elective	3
			15

Eighth Semester

EE	481	Senior Design Projects	3
EE/CMPE		Elective(2)	3
EE	400	Community Service	0
GEC	8	Western Culture Elective	3
GEC	9	Non-Western Culture Elective	3
		Technical Elective(1)	3
			15

Notes:

(1) Technical Electives must be approved by the ECE Department

(2) Computer Engineering electives must be taken from an approved list.

BSCPE Program Total: 132 credit hours

Computer Science
Bachelor of Science

Computer scientists are distinguished from other computer professionals, such as information technology specialists and system administrators, by the higher level of theoretical expertise, the innovation they apply to complex problems, and the extensive knowledge and experience they possess in software engineering. A computer scientist can often expect to work on multidisciplinary projects such as robotics, human-computer interaction, advanced computer graphics, and artificial intelligence based systems.

The Bachelor of Science in Computer Science (BSCS) program at WVU-Tech is a 123 credit hour program of study with 60 hours of computer science theory and languages, 21 hours of calculus-based mathematics, 6 hours of upper division technical electives, and 8 hours of laboratory science. The first two years of study focus on the fundamentals of computer science concepts and provide a firm foundation in mathematics. During the junior and senior years, students are introduced to advanced concepts in the science of computation and are presented the opportunity to take elective courses such as cryptology, computer graphics, artificial intelligence and image processing. The two semester senior project sequence provides the culminating experience for the Computer Science students. Students also have the opportunity to participate in undergraduate research projects with the computer science faculty.

Program Educational Objectives

- Graduates will be able to enter the professional practice in Computer Science or pursue graduate studies.
- Graduates will be able to develop Computational solutions to problems in a professional environment.
- Graduates will deal responsibly and ethically with societal issues and engage in lifelong learning.
- Graduates will communicate effectively with different audiences and work effectively in teams.

Student Outcomes

By the time of graduation the BS degree in Computer Science at WVU Tech enables students to attain:

- An ability to apply knowledge of computing and mathematics appropriate to the program’s student outcomes and to the discipline
- An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution
- An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs
- An ability to function effectively on teams to accomplish a common goal
- An understanding of professional, ethical, legal, security and social issues and responsibilities
- An ability to communicate effectively with a range of audiences
- An ability to analyze the local and global impact of computing on individuals, organizations, and society
- Recognition of the need for and an ability to engage in continuing professional development

- An ability to use current techniques, skills, and tools necessary for computing practice.
- An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
- An ability to apply design and development principles in the construction of software systems of varying complexity.

Computer Science Minor

Any student admitted to a degree program other than Computer Science may complete a minor in Computer Science. The Computer Science minor consists of seven Computer Science courses in the following three categories: 1. CS 121 and CS 122; either 2(a). CS 201, CS 222, and CS 310 (programming track) or 2(b). CS 231, CS 265, and CS 350 (systems track); and 3. two courses chosen from CS 321, CS 324, CS 410, CS 450, CS 464, or CS 472. Students must earn a grade of C or better for each of the courses counted towards the minor.

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Computer Science
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric	3
CS	121	Computer Science 1	4
WVUE	191	Freshman Seminar	1
GEC	3	The Past and Its Traditions	3
GEC	8	Western Culture	3
			14

Second Semester

ENGL	102	Composition & Rhetoric	3
CS	122	Computer Science 2	4
GEC	5	Artistic Expression Elective	3
GEC	7	American Culture	3
GEC	9	Non-western Culture	3
			16

Third Semester

MATH	155	Calculus I	4
CS	201	Data Structures	3
CS	231	Intro to Computer Organization	3
CS	265	Organization C Programming	2
GEC	2	Laboratory Science*	4
			16

Fourth Semester

MATH	156	Calculus II	4
CS	220	Discrete Mathematics	3
CS	222	Software Engineering	3
CS	310	Principles of Programming Language	3
GEC	2	Laboratory Science*	4
			17

Fifth Semester

MATH	251	Multivariable Calculus	4
ECON	401	Managerial Economics (GEC 4)	3
CS	321	Introduction to Networking	3
CS	221	Analysis of Algorithms	3
		Technical Elective***	3
			16

Sixth Semester

MATH	441	Linear Algebra	3
ENGL	305	Technical Writing (W)	3
CS	324	Database Management	3
CS	350	Computer System Concepts	3
		Computer Science Elective	3
			15

Seventh Semester

MATH	448	Probability & Statistics	3
CS	410	Compiler Construction	3
CS	480	Senior Design Seminar	2
GEC	6	The Individual in Society	3
		Computer Science Elective**	3
			14

Eighth Semester

CS	450	OS Structures	3
CS	479	Advanced CS Math	3
CS	481	Senior Design Project Advanced	3
		Computer Science Elective**	3
		Technical Elective***	3
			15

*__Laboratory Science__ is restricted to PHYS 101, 102, 111,112, CHEM 111, 112, 115, 116, BIOL 111, 112.
**__CS Electives__ may be chosen from any 300-400 level class, except CS 491.
***__Technical Electives__ may be chosen from the approved list

Total Hours 123

Electrical Engineering
Bachelor of Science

Electrical engineering is one of the most dynamic fields of engineering today. New technologies are under constant development and new industries are emerging as a result of the efforts of electrical engineers.

The Electrical Engineering curriculum provides a well-rounded education to meet the needs and challenges of our modern society. The student will receive a solid background in mathematics and science, as well as, a strong foundation in the major areas of electrical engineering (circuits and systems, computers, electronics, electromagnetic fields, controls, communications, electric machinery and power) supported by practical-oriented laboratory assignments. The student can pursue special areas of interest through several elective courses. The student will be well prepared to be successful in the workforce and be productive.

One of the key features of engineering that sets it apart from other disciplines is design. Design is the creative process of putting ideas, components, and systems together to develop solutions to problems and needs. The curriculum encourages design-oriented thinking at a fundamental level and culminates in the capstone senior design course sequence in which many factors such as technical, economic, environmental, ethical and legal, health and safety, manufacturability, political, social, sustainability, and realistic standards are considered.

The ability of the engineer to communicate in writing and speech is very important as the modern engineer is expected to express technical concepts and defend technical decisions in front of non-technical people. Therefore, courses in English, social science, and the humanities are vital in the Electrical Engineering curriculum.

Educational Objectives

We desire that students after graduation accomplish one or more of the following objectives:

- **Professional Practice**
  Electrical engineering graduates will be successful in professional Practice in Engineering.
- **Post-graduate Education**
  Electrical engineering graduates will be successful in pursuing advanced education.
- **Advancement**
  Electrical engineering graduates will successfully advance in their careers.

The Electrical Engineering program has the following Program Outcomes:

- **Engineering Science**
  Students will attain an ability to apply knowledge of mathematics, science, and engineering.
- **Engineering Experimentation**
  Students will attain an ability to design and conduct experiments, as well as to analyze and interpret data.

- **Engineering Design**
  Students will attain an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- **Teamwork**
  Students will attain an ability to function on multidisciplinary teams.
- **Problem Solving**
  Students will attain an ability to identify, formulate, and solve engineering problems.
- **Engineering Ethics**
  Students will attain an understanding of professional and ethical responsibility.
- **Effective Communication**
  Students will attain an ability to communicate effectively.
- **Impact of Engineering**
  Students will attain the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- **Life-long Learning**
  Students will attain a recognition of the need for, and an ability to engage in life-long learning.
- **Contemporary Issues**
  Students will attain a knowledge of contemporary issues.
- **Modern Tools**
  Students will attain an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Electrical Engineering
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
MATH	155	Calculus I (GEC 2)	4
WVUE	191	Freshman Seminar (GEC 6)	1
CS	112	Computer Sci for Engineers 1	3
CHEM	115	Fundamentals of Chemistry	4
GEC	3	The Past & Its Traditions Elective	3
			18

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
MATH	156	Calculus II (GEC 2)	4
ENGR	101	Engineering Problem Solving I	2
GEC	5	Artistic Expression Elective	3
GEC	6	The Individual in Society Elective	3
			15

Third Semester

MATH	251	Multivariable Calculus	4
PHYS	111	General Physics (GEC 2)	4
EE	200	ECE Software Tools	2
EE	221	Introduction Electrical Engr	3
EE	222	Intro Electrical Engr Lab	1
GEC	7	American Culture Elective	3
			17

Fourth Semester

MATH	261	Differential Equations	4
PHYS	112	General Physics (GEC 2)	4
EE	223	Electrical Circuits	3
EE	224	Electrical Circuits Lab	1
CPE	271	Digital Logic Design	3
CPE	272	Digital Logic Design Lab	1
			16

Fifth Semester

EE	355	Analog Electronics	3
EE	356	Analog Electronics Lab	1
EE	327	Signals & Systems I	3
CPE	310	Microprocessor Systems	3
CPE	311	Microprocessor Lab	1
EE	345	Engineering Electromagnetics	3
MATH	448	Probability & Statistics	3
			17

Sixth Semester

EE	311	Junior Instrumentation Lab	1
EE	329	Signals & Systems II	3
EE	335	Electromech Energy Conv	3
EE	336	Elect Energy Conv. Lab	1
ENGL	305	Technical Writing	3
MATH	441	Applied Linear Algebra	3
ECON	401	Managerial Economics (GEC 4)	3
			17

Seventh Semester

EE	480	Senior Design Seminar	3
EE	461	Intro Communication Systems	3
EE	436	Power Systems Analysis	3
EE	411	Fund of Cont Systems	3
EE	412	Automatic Control Lab	1
EE/CPE		Elective	3
			16

Eighth Semester

EE	481	Senior Design Projects	3
EE	400	Community Service	0
EE/CPE		Elective	3
		Technical Elective[1]	3
GEC	8	Western Culture	3
GEC	9	Non-Western Culture Elective	3
			15

Notes: [1] Additional mathematics course will give the Electrical Engineering student a Minor in Mathematics.

BSEE Program Total Hours: 131 credit hours

Electrical Engineering
BSEE (Electrical Energy Systems Area of Emphasis)

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
MATH	155	Calculus I (GEC 2)	4
CHEM	115	Fundamentals of Chemistry	4
WVUE	191	First Year Seminar	1
CS	112	Computer Sci for Engineers 1	3
GEC	3	The Past & Its Traditions Elective	3
			18

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
MATH	156	Calculus II (GEC 2)	4
ENGR	101	Engineering Problem Solving 1	2
GEC	5	Artistic Expression Elective	3
GEC	6	The Individual in Society Elective	3
			15

Third Semester

MATH	251	Multivariable Calculus	4
PHYS	111	General Physics (GEC 2)	4
EE	200	ECE Software Tools	2
EE	221	Intro to Electrical Engineering	3
EE	222	Intro to Electrical Engineering Lab	1
GEC	7	American Culture Elective	3
			17

Fourth Semester

MATH	261	Differential Equations	4
PHYS	112	General Physics (GEC 2)	4
EE	223	Electrical Circuits	3
EE	224	Electrical Circuits Lab	1
CPE	271	Digital Logic Design	3
CPE	272	Digital Logic Design Lab	1
			16

Fifth Semester

EE	355	Analog Electronics	3
EE	356	Analog Electronics Lab	1
EE	327	Signals & Systems I	3
EE	345	Engr Electronmagnetics	3
CPE	310	Microprocessor Systems	3
CPE	311	Microprocessor Systems Lab	1
MATH	448	Probability and Statistics	3
			17

Sixth Semester

EE	311	Junior Instrumentation Lab	1
EE	329	Signals & Systems II	3
EE	335	Electromech Energy Conv	3
EE	336	Electromech Energy Conv Lab	1
MATH	441	Applied Linear Algebra	3
ECON	401	Managerial Economics (GEC 4)	3
ENGL	305	Technical Writing	3
			17

Seventh Semester

EE	480	Senior Seminar	3
EE	461	Intro Communications Systems	3
EE	436	Power Systems Analysis	3
EE	411	Automatic Control Systems	3
EE	412	Controls Lab	1
EE		Energy Related Elective[1]	3
			16

Eighth Semester

EE	481	Senior Projects	3
EE	435	Power Electronics	3
EE	400	Community Service	0
EE		Energy Related Elective(s) [1]	3
GEC	8	Western Culture Elective	3
GEC	9	Non-Western Culture Elective	3
			15

[1]ECE Energy Elective is to be taken from an approved list.

BSEE Program Total: 131 Credit Hours

Mechanical Engineering
Bachelor of Science

Mechanical engineering is one of the largest technical professions with a history of significant contributions to the industrial development since the dawn of human civilization. History of technology is replete with stories of successful applications of ideas and concepts from mechanical engineering that have brought tremendous prosperity to industrialized nations starting with the industrial revolution. Mechanical engineers also play a vital role in maintaining the leadership in technology to insure the survival and growth of an industrialized society.

In order to prepare our students for the challenges awaiting them in the real world, the Mechanical Engineering Department at WVU Tech offers a practice oriented education with strong emphasis on hands-on experience at all levels of its BSME program. The curriculum is designed to develop the skills necessary to succeed in a field that is both challenging and rewarding. The Mechanical Engineering Program includes sequential courses in several areas, such as English, mathematics, chemistry, physics, humanities, computer science, general engineering science and foundation courses in mechanical engineering such as thermodynamics, machine design, heat transfer, mechanical vibrations, control systems and materials science. Technical electives in thermal and mechanical systems are included in the program to enable our graduates to pursue special areas of interest.

Practicing mechanical engineers consider these courses as essential for a sound mechanical engineering curriculum. They are also mandated by the ABET, the national organization that accredits engineering programs in the United States. The Mechanical Engineering curriculum is designed to include meaningful design experience in several of the required and elective courses. Students develop analytical and design skills systematically by successfully completing sequential courses such as Statics, Dynamics, Mechanics of Materials, Dynamics of Machines, Machine Design and Systems Design I and II. Open-ended, multiple-solution design concept is incorporated across the curriculum starting with Mechanics of Materials in their sophomore year and ending with two capstone design courses during their senior year. In the capstone design courses, students learn how to apply the previously acquired knowledge in science, technology, humanities, communications, ethics, economics, etc.

The Mechanical Engineering faculty also recognizes the dynamic nature of modern technology in which advances are inevitable and the need for our students to be prepared to meet these challenges. The curriculum is therefore under constant review, and changes are introduced in response to the changing needs of the industry and job market.

Departmental Mission

The mission of the Mechanical Engineering Department at WVU Tech is to produce high quality mechanical engineers with the best possible education that would enable them to become competent members of the profession able to handle the most challenging jobs. The Mechanical Engineering Department intends to fulfill this mission by maintaining high academic quality that insures continued ABET accreditation.

Departmental Goals

In order to succeed in the mission stated above, the Mechanical Engineering faculty is committed to the following goals:

- Provide an atmosphere of dedicated teaching and support services to the students with the best possible classroom instructions, counseling, academic planning, career guidance and personal attention to facilitate growth and success in academic and professional work.
- Provide quality learning tools and academic environment that would produce technically competent mechanical engineers who are able to meet the needs of employers from government, industry and business.
- Encourage and nurture students' interest in engineering as a profession.
- Help students develop self-motivation, good work habits, personal discipline, and skills needed to be a professionally successful member of the society.

Educational Objectives

Consistent with the mission and the goals stated above, and with input from the constituents, the following Educational Objectives have been adopted by the faculty of the Mechanical Engineering Department. Graduates of the WVU Tech Mechanical Engineering program:

- Are successful in the practice of mechanical engineering.
- Advance to positions of technical and/or managerial leadership.
- Are successful in graduate studies, if they choose to pursue advanced education.
- Are able to obtain professional registration, if they choose to, after appropriate professional experience.
- Are dedicated to life-long learning in their professional career.

Program Outcomes

Consistent with the mission of WVU Tech and in compliance with the ABET criteria, the Program emphasizes the development of a well-rounded mechanical engineer. Upon graduation they will be able to demonstrate:

- Knowledge of mathematics, sciences and fundamentals of engineering necessary for a successful career in engineering practice
- The ability to identify, formulate, analyze problems and develop solutions based on standard engineering norms and practices
- The ability to apply their analytical skills and creativity to investigate the adequacy of a design and to make design improvements where necessary
- The ability to conduct mechanical measurements; collect, evaluate and present experimental results; design and build experiments to investigate engineering phenomena including the analysis and interpretation of data
- Knowledge of and the ability to use the computer, standard software and computing tools appropriate to their work
- Knowledge of safety practices in experimental work
- Knowledge of environmental requirements and constrains on engineering practice

- Knowledge and ability to design mechanical and thermal systems, components, or processes to meet desired needs
- The ability to function as a productive member of multi-disciplinary teams
- Knowledge of professional and ethical codes of conduct and responsibilities
- The ability to effectively communicate in oral and written forms
- Knowledge of the impact of engineering solutions in a global and societal context as a result of having a broad education
- The ability to recognize the need for and engage in life-long learning
- The ability to demonstrate knowledge of contemporary issues
- The ability to work professionally in thermal and mechanical systems areas including the design and realization of such systems.

Assessment

The Mechanical Engineering Program at WVU Tech has a multi-faceted assessment process in place which includes: students' classwork and portfolios such as design projects; course evaluations; faculty evaluations; exit surveys of graduating seniors; alumni surveys; advisory board surveys; employer surveys; placement data of graduates; and the results of the Fundamentals of Engineering (FE) Examination. The feedback from these sources is continuously used by the Mechanical Engineering faculty to update the curriculum and to make the changes found necessary to maintain or enhance the quality of the program.

Mechanical Engineering
Bachelor of Science

First Semester

WVUE	191	First Year Seminar	1
ENGL	101	Composition & Rhetoric	3
CHEM	115	Fund of Chemistry I	4
MATH	155	Calculus I	4
DRET	120	Drafting I	2
GEC	3	The Past and Its Traditions[1]	3
			17

Second Semester

ENGL	102	Composition & Rhetoric	3
ENGR	111	Software Tools for Engineers	3
MAE	241	Statics	3
MATH	156	Calculus II	4
GEC	5	Artistic Expression Elective	3
			16

Third Semester

MAE	242	Dynamics	3
MAE	243	Mechanics of Materials	3
MAE	240	Manufacturing Processes	3
MATH	251	Multivariable Calculus	4
PHYS	111	General Physics I	4
			17

Fourth Semester

PHYS	112	General Physics II	4
MAE	331	Fluid Mechanics	3
MAE	201	Applied Engineering Analysis	3
MAE	320	Thermodynamics	3
MATH	261	Elementary Differential Equations	4
			17

Fifth Semester

MAE	342	Dynamics of Machines	3
MAE	333	Mechanical Measurements	1
MAE	321	Applied Thermodynamics	3
EE	221	Introduction Electrical Engineering	3
EE	222	Intro Electrical Engineering Lab	1
MAE	454	Machine Design & Manufacturing	3
GEC	8	Western Culture Elective	3
			17

Sixth Semester

MAE	332	Experimental Methods	1
MAE	423	Heat Transfer	3
MAE	419	Heat Transfer Lab	1
MAE	340	Vibrations	3
ENGL	305	Technical Writing	3
ECON	401	Managerial Economics (GEC 4)	3
GEC	6	The Individual in Society Elective	3
			17

Seventh Semester

MAE	405	Sr. Mechanical Engineering Lab	1
MAE	455	CADD-Comp Aided Des & Draft	3
MAE	480	ME Systems Design I	3
GEC	7	American Culture Elective	3
GEC	9	Non-Western Culture Elective	3
		Technical Elective(s)	3
			16

Eighth Semester

ENGR	401	Sr. Engineering Seminar	1
MAE	410	Materials Science	4
MAE	460	Auto Controls	3
MAE	481	ME Systems Design II	3
MAE	456	Finite Element Method	3
		Technical Elective(s)	3
			17

[1]Refer to GEC Matrix for available GEC Courses.
All Technical Electives must be approved by the M.E. Department Advisors.

Electronic Engineering Technology
Bachelor of Science

The Bachelor of Science in Electronic Engineering Technology (BSEET) program is a plus-two program that builds on two-year Electrical or Electronics Engineering Technology programs. An associate of science degree in Electrical or Electronics Engineering Technology is desired for entrance into the program. The program is designed to produce applications-oriented graduates with an electronics background to fulfill the demands created by rapidly changing technology. Technical specialty courses in the curriculum emphasize process control, instrumentation, communications, and microprocessor applications. Course offerings are designed to be consistent with the evolution of energy-related and computer-based industrial needs of the state and region.

Graduates of associate of science degree Electrical/Electronic Engineering Technology programs from other institutions may enter the program directly as juniors based on an evaluation of their transcripts. In all cases, an evaluation of transfer credits will be conducted to validate course requirements. This evaluation determines if additional lower division courses will be required to meet the prerequisites of upper division courses in the curriculum.

The B.S. Electronic Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – telephone: (410) 347-7700.

Program Educational Objectives

Graduates of the bachelors' degree program in Electronic Engineering Technology will be:

- Able to demonstrate an awareness of contemporary social and economic issues, and the relationship of those issues to their professional electronics engineering practice**.**
- Able to demonstrate the need to maintain their technical skills and develop new ones through personal development and life-long learning.
- Capable of conveying technical information through their proficiency in written and spoken communication skills.
- Able to demonstrate an appreciation and understanding for cultural and ethnic diversity in the workplace.
- Able to demonstrate sufficient understanding of professional and ethical responsibilities to their field and to society.
- Able to acquire and maintain successful employment using their skills in applied electronics engineering technology.

Program Educational Outcomes

Upon completion of the BS program in Electronic Engineering Technology, graduates will be able to:

- Apply principles of mathematics and science to perform technical calculations and solve electronic engineering technology problems.
- Demonstrate the ability to identify, formulate, and present creative solutions to technical problems.
- Perform competently in a laboratory setting.

- Operate modern computational tools for problem solving, including scientific calculators, computers, and appropriate software.
- Demonstrate the ability to communicate and function effectively with members of multi-disciplinary teams.
- Demonstrate a general knowledge of professional ethical responsibility toward employers, customers, and society.
- The graduate will recognize the need for obtaining additional education, training, or certification as a means of maintaining and improving the skills necessary for career advancement and personal fulfillment.
- Demonstrate ability to building, operate, test, and maintain electrical/electronic systems while applying skills in circuit analysis and design, computer programming, analog and digital electronics, and microcomputers.
- Apply principles of chemistry and physics along with advanced mathematics for electrical/electronic circuit design and analysis.
- Demonstrate project management techniques on electronic engineering projects.
- Apply principles of advanced mathematics to electrical/electronic systems.
- Demonstrate knowledge of control and instrumentation systems, power systems, communication systems, or computer systems.
- Demonstrate knowledge of the impact of engineering technology solutions in a societal context.
- Apply written, oral, and graphical communication in the class work, and proper use of references.

Careers in Engineering Technology

The program prepares graduates with the technical and managerial skills necessary to enter careers in the design, application, installation, manufacturing, testing, operation, oversight, and maintenance of electrical or electronic systems. Baccalaureate degree graduates are also prepared for development and implementation of new electrical/electronic systems.

Job titles of recent graduates have included: Electronic Technician, System Representative II, Service Engineer, Engineering Technician, Maintenance Technician, Foreman/Supervisor/ Manager, Electrical Engineer, Sales Engineer, Process Engineer, Design Engineer, Instrumentation Engineer, Control Systems Engineer, Quality Assurance Manager.

Plus-Two Baccalaureate Transfer Options

Students who have completed course work or associate degree programs in engineering-oriented programs at other institutions and wish to continue their studies toward a Bachelor of Science degree in engineering technology may do so. For more information, contact the Chair of the Engineering Technology/Industrial Technology department.

Electronic Engineering Technology*
Bachelor of Science

Fifth Semester

CHEM	115	Chemistry	4
MATH	315	Advanced Technical Math[2]	4
ENGL	305	Technical Writing[3]	3
ELET	315	Electronic Measurement & Inst	4
GEC	5	Artistic Expression Elective	3
			18

Seventh Semester

ELET	410	Control Systems Technology	3
ELET	420	Microprocessors & Digital Sys	4
ELET	436	Power Systems & PLCs	4
GNET	410	"C" Programming for Tech	3
GNET	412	Project Management	3
			17

Sixth Semester

GNET	308	Advanced Computer Apps, or MANG 386 or MATH 261/300+	3
ELET	337	Communication Systems II	4
GEC	6	The Individual in Society	3
GEC	7	American Culture Elective	3
		Technical Specialty Elective[4]	3
			16

Eighth Semester

ELET	426	Microprocessor-based Data Acquisition & Control	4
GNET	489	Senior Seminar & Project[5]	2
GEC	8	Western Culture Elective	3
GEC	9	Non-Western Culture Elective	3
		Technical Elective(s)	4
			16

*Students entering the BSEET program should satisfy GEC 1, 2, 3, and 4 in their associate degree program.

[1]Transfer students will need a two-course science sequence (GEC 2 Objective) in Physics or Chemistry. This additional elective may be selected from any of the sciences used to satisfy the sequence.
[2]Transfer students are required to transfer or complete 3-4 credits in mathematics. Courses listed with the WV HEPC Core Coursework Transfer Agreement will satisfy the GEC 2 Objective.
[3]Students entering the program without an equivalent ENGL 101 & 102 (GEC 1 Objective) sequence will need to complete the sequence prior to taking ENGL 305.
[4]To be approved by department advisor. See advisor for approved electives. One technical elective will be selected from the following courses: INDT 384, MATH 261, MEET 435, ELET 321, ELET 322, ELET 421, ELET 422 or any CSCI 200+ or ELCE 300+ level course approved by both departments. Exceptions require department Chair consent. Other technical specialty electives may be selected from the other ELET course (except 274), or courses in other Engineering Technology fields.
[5]Capstone course.

Engineering Technology
Bachelor of Science

The Bachelor of Science in Engineering Technology (BSET) is a plus-two program that builds on and complements associate degrees earned in a variety of Engineering Technology areas. The program is unique in its nature and overall design since it provides an opportunity to choose a plan to study toward a baccalaureate degree which best meets the student's needs. Entrance requirements to this program include an associate of science degree in an Engineering Technology program with appropriate course work, including physical sciences and mathematics (through analytic geometry with calculus).

As students enter the program, an evaluation of their transcript will be made. This evaluation determines if additional lower division courses will be required to meet the prerequisites of the program. Using the general curriculum shown a program of study can be designed to meet the student's background and career interests.

The student, with the assistance and approval of the Chair of the Engineering Technology/Industrial Technology department, can select technical specialty elective courses for the program chosen. This is normally done when entering the program. Selected technical specialty courses can be taken in mechanical, civil, electrical/electronics, and drafting and design engineering technology; as well as industrial technology, and selected Engineering courses, depending on the program of study. Also, some mathematics, science, and management courses may be included.

All students must meet the requirements of the institution and the Core Curriculum for graduation. A minimum of 40 semester hours of upper-division courses is required. If a computer programming course using a technical language has already been completed, a Technical Elective may be substituted for the C++ programming course.

Program Objectives

In addition to the learning outcomes set forth in the general education core curriculum for the baccalaureate degree, specific outcomes for this program have been established.

Baccalaureate degree graduates will be able to apply those outcomes to achieve the following in regard to the analysis, design, development, implementation, and/or oversight of systems and processes consistent with the technical orientation of the program:

- Apply technical core topics such as engineering materials, statics, dynamics, strength of materials, fluid power or fluid mechanics, thermodynamics, and electrical power or electronics to the solution of problems typically addressed by entry level engineering technologists
- Communicate effectively through written and oral expression
- Acquire new knowledge independently on-the-job
- Work effectively in a diverse workplace environment
- Effectively use advanced mathematics to solve technical problems
- Account for the impact of societal and global issues in their decision making process.

Program outcomes are assessed through a designated 'capstone' course as well as a variety of other assessment instruments. Course outcomes are assessed through a variety of assessment instruments including exit examinations in each course.

Careers in Engineering Technology

Baccalaureate degree graduates are typically involved in the analysis, design, development, implementation, and/or oversight of more advanced technical systems and processes. Job titles of recent graduates have included: Service Representative, Engineering Assistant.

Plus-Two Baccalaureate Transfer Options

Students who have completed course work or associate degree programs in engineering-oriented programs at other institutions and wish to continue their studies toward a Bachelor of Science degree may do so. Students must satisfy all general education and program specific requirements to be eligible for the award of this degree. For more information, contact the Chair of the Engineering Technology/Industrial Technology department.

Engineering Technology*
Bachelor of Science

Fifth Semester

CHEM	115	Fund of Chemistry I[1]	4
MATH	315	Advanced Technical Math[2]	4
ENGL	305	Technical Writing[3]	3
		Emphasis Tech Spec Elective[4]	3
		Emphasis Tech Spec Elective[4]	3
			17

Sixth Semester

GNET	308	Advanced Computer Apps, or MANG 386 or MATH 261/300+	3
GEC	7	American Culture Elective	3
		Emphasis Tech Spec Elective[4]	3
		Emphasis Tech Spec Elective[4]	3
		Emphasis Tech Spec Elective[4]	3
			15

Seventh Semester

INDT	302	Industrial Safety	3
GNET	410	"C" Programming for Tech	3
GNET	412	Project Management	3
GEC	8	Western Culture Elective	3
GEC	9	Non-Western Culture Elective	3
		Emphasis Tech Spec Elective[4]	3
			18

Eighth Semester

GEC	5	Artistic Expression Elective	3
GEC	6	The Individual in Society	3
		Emphasis Tech Spec Elective[4]	3
		Emphasis Tech Spec Elective[4]	3
		Emphasis Tech Spec Elective[4]	3
GNET	489	Senior Seminar & Project[5]	2
			17

*Students entering the BSET program should satisfy GEC 1, 2, 3, and 4 in their associate degree program.

[1]Lab Science choices must include a two-course sequence.
[2]Transfer students are required to transfer or complete 3-4 credits in mathematics. Courses list with the WV HEPC Core Coursework Transfer Agreement will satisfy the GEC 2 Objective.
[3]Students entering the program without an equivalent ENGL 101 & 102 (GEC 1 Objective) sequence will need to complete the sequence prior to taking ENGL 305.
[4]Subject to the approval of the Department Chair of the Engineering Technology/Industrial Technology.
[5]Capstone course.

Engineering Technology – Civil
Bachelor of Science

The Bachelor of Science in Engineering Technology - Civil (BSET-C) is a plus-two program that builds on and complements associate degrees earned in Civil Engineering Technology areas. The program provides an opportunity to choose a plan to study toward a baccalaureate degree which best meets the student's needs. Entrance requirements to this program include an associate of science degree in a Civil Engineering Technology program with appropriate course work, including physical sciences and mathematics (through analytic geometry with calculus).

Graduates of associate degree Civil (Engineering) Technology programs from other institutions may enter the program directly as juniors based on an evaluation of their transcripts. This evaluation determines if additional lower division courses will be required to meet the prerequisites of the program.

All students must meet the requirements of the institution and the Core Curriculum for graduation. The B.S. Engineering Technology-Civil program is accredited by the Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – telephone: (410) 347-7700.

Program Educational Objectives

Graduates of the BSET-Civil program will be able to achieve the following career and professional accomplishments:

- Graduates are demonstrating an awareness of contemporary social and economic issues, and the relationship of those issues to their professional civil engineering practice**.**
- Graduates are demonstrating the need to maintain their technical skills and develop new ones through personal development and life-long learning.
- Graduates are capable of conveying technical information through their proficiency in written and spoken communication skills.
- Graduates are demonstrating an appreciation and understanding for cultural and ethnic diversity in the workplace.
- Graduates are demonstrating sufficient understanding of professional and ethical responsibilities to their field and to society.
- Graduates are able to acquire and maintain successful employment using their skills in applied civil engineering technology.

Program Educational Outcomes

Upon completion of the BSET program in Civil Engineering Technology, graduates will be able to

- Use appropriate tools to acquire data and analyze problems, including software and lab equipment.
- Apply the principles of mathematics, science and engineering technology to perform technical calculations and solve for civil engineering technology problems.
- Perform competently in a laboratory setting.
- Solve problems and design components, systems or processes appropriate to civil engineering technology.

- Demonstrate effective skills in the development and presentation of team projects utilizing written, oral and graphical communication skills as well as proper use of references.
- Function effectively in a team.
- Generate creative and realistic solutions to defined problems and projects.
- Exhibit knowledge and skills consistent with expectations of a practicing engineering technologist, including professional development and continuous improvement.
- Demonstrate a general knowledge of professional and ethical responsibility toward employers, customers, and society.
- Demonstrate knowledge of the impact of civil engineering technology solutions in a societal context.
- Utilize computer software to prepare technical reports.
- Conduct standardized construction/civil engineering materials experiments.
- Utilize surveying methods for land measurement and/or construction layout.
- Conduct basic structural analysis including forces and stresses in elementary structural systems.
- Plan and prepare several engineering management documents, design and construction documents such as specifications, contracts, change orders, engineering drawings, and construction schedules.
- Perform economic analysis and cost analysis related to design, construction, operations, and maintenance of systems in civil specialties.
- Select appropriate engineering materials and practices.
- Perform standard analysis and design in the following sub-discipline: Structures, Geotechnical, construction, transportation, or environmental.

Careers in Engineering Technology

Baccalaureate degree graduates are typically involved in the analysis, design, development, implementation, and/or oversight of more advanced civil systems and processes. Job titles of recent graduates have included: Project Engineer, Project Manager, Office Engineer, GIS Analyst, Assistant Field Engineer, Engineer I, Construction Manager and Estimator.

Plus-Two Baccalaureate Transfer Options

Students who have completed course work or associate degree programs in engineering-oriented programs at other institutions and wish to continue their studies toward a Bachelor of Science degree in engineering technology may do so. For more information, contact the Chair of the Engineering Technology/Industrial Technology department.

Engineering Technology – Civil
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric	3
WVUE	191	First Year Seminar	1
DRET	120	Drafting I	2
CS	101	Intro to Computer Appl	4
MATH	126	College Algebra	3
MATH	128	Trigonometry	3
			16

Second Semester

ENGL	102	Composition & Rhetoric	3
DRET	121	Drafting II	2
PHYS	101	Introductory Physics I	3
CIET	114	Statics	3
GEC	3	The Past and Its Traditions	3
CIET	141	Surveying I	3
			17

Third Semester

CIET	115	Strength of Materials	3
CHEM	115	Fund of Chemistry	4
CIET	230	Hydraulics & Drainage	3
MATH	155	Calculus I	4
CIET	131	Construction Materials	3
			17

Fourth Semester

GEOL	312	Geology	3
CIET	222	Soils and Foundations	3
		Technical Specialty Elective[2]	3
PHYS	102	Introductory Physics II	4
GEC	6	The Individual in Society Elective	3
			16

Fifth Semester

MATH	315	Advanced Technical Math[2]	4
ENGL	305	Technical Writing[3]	3
MEET	316	Dynamics[4]	3
		Technical Specialty Elective[2]	3
CIET	382	Environmental Engr Technology	3
			16

Sixth Semester

CIET	325	Codes, Contracts, Cost Anal	3
CIET	355	Construction Estimating, or 216/300+ Math Elective	3
CIET	330	Comp Appl in Hydraulics/Hydro	3
GEC	9	Non-Western Culture Elective	3
		Technical Specialty Elective[2]	
		Technical Specialty Elective[2]	3
			18

Seventh Semester

CIET	320	Construction Methods & Equip	3
INDT	302	Industrial Safety	3
DRET	314	Computer Graphics	3
		Technical Specialty Elective[2]	3
GEC	5	Artistic Expression Elective	3
		Advanced CAD Elective[1]	3
			18

Eighth Semester

INDT	420	Construction Technology	3
GNET	489	Senior Seminar & Project[3]	2
GEC	7	American Culture Elective	3
GEC	8	Western Culture Elective	3
		Technical Specialty Elective[2]	3
		Technical Specialty Elective[2]	3
			17

*Students choosing to double major in BSET Civil and Environmental must have at least 18 hours difference between the two courses

[1]Must take one of the following subjects:

DRET	284	Micro Station	3
DRET	285	Land & Topographic Design	3
DRET	286	Parametric Modeling	3
DRET	288	SurvCAD	3
GNET	499	Techniques in GPS/GIS 3	or equivalent

[2]Subject to approval of the advisor. Selected Civil Engineering courses may be taken with the approval of both the advisor and the Chair of Civil Engineering, if prerequisites are met. **A minimum of 40 semester hours of upper division courses is required.**

[3]Capstone course.

Engineering Technology – Environmental
Bachelor of Science

The Bachelor of Science in Engineering Technology - Environmental (BSET-E) is a plus-two program that builds on and complements associate degrees earned in a variety of Environmental Science and Engineering Technology areas. Entrance requirements to this program include an associate of science degree in a related technology program with appropriate course work to include physical sciences and mathematics (through analytic geometry with calculus).

As students enter the program, an evaluation of their transcript will be made to determine if additional lower division courses will be required to meet the prerequisites of the program. A program of study can be designed to meet the student's background and career interests. Students selecting the Environmental emphasis must transfer a course in hydrologic systems or take it while enrolled in the program.

All students must meet the requirements of the institution and the General Education Curriculum (GEC) for graduation. A minimum of 40 semester hours of upper-division courses is required.

Program Objectives

In addition to the learning outcomes within the GEC for the baccalaureate degree, specific outcomes for this program have been established.

Baccalaureate degree graduates should be able to apply the following to the analysis, design, development, implementation, and/or oversight of environmental systems and processes using:

- Technical core topics related to fluids, environmental chemistry and processes, applied thermodynamics, geology, and biology
- Technical specialty areas of environmental analysis and systems design, physical and organic chemistry, and microbiology
- Physics principles having an emphasis in applied mechanics, added technical topics in physics/chemistry/biology consistent with the program orientation, and having application to environmental systems and processes
- Advanced mathematics to solve technical problems

Course outcomes are assessed by exit examinations in each course. Program outcomes are assessed in designated courses.

Careers in Engineering Technology

Baccalaureate degree graduates are typically involved in the analysis, design, development, implementation, and/or oversight of more advanced environmental systems and processes. Job titles of recent graduates have included: Assistant Field Engineer and Environmental Specialist.

Plus-Two Baccalaureate Transfer Options

Students who have completed course work or associate degree programs in engineering-oriented programs at other institutions and wish to continue their studies toward a Bachelor of Science degree in engineering technology may do so. For more information, contact the Chair of the Engineering Technology/Industrial Technology Department.

Engineering Technology – Environmental
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric	3
WVUE	191	Freshman Seminar	1
DRET	120	Drafting I	2
CS	101	Intro to Computer Appl	4
MATH	126	College Algebra	3
CIET	131	Construction Materials	3
			16

Second Semester

ENGL	102	Composition & Rhetoric	3
DRET	121	Drafting II	2
MATH	128	Trigonometry	3
CIET	114	Statics	3
GEC	3	The Past and Its Traditions	3
CIET	141	Surveying I	3
			17

Third Semester

CIET	115	Strength of Materials	3
CHEM	115	Fund of Chemistry	4
CIET	230	Hydraulics & Drainage	3
MATH	155	Calculus I	4
GEC	7	American Culture	3
			17

Fourth Semester

CIET	222	Soils and Foundations	3
CIET	245	Highways	3
CHEM	116	Fund of Chemistry II	4
GEC	8	Western Culture	3
GEC	9	Non-Western Culture	3
			16

Fifth Semester

PHYS	101	Introductory Physics I	4
MATH	315	Advanced Technical Math[2]	4
ENGL	305	Technical Writing[3]	3
		Technical Specialty Elective[1]	3
CIET	382	Environmental Eng Tech	3
			17

Sixth Semester

GEC	5	Artistic Expression Elective	3
GEOL	312	Geology	3
CIET	325	Codes, Cont & Cost Analysis	3
		Technical Specialty Elective[1]	3
GNET	308	Advanced Computer Apps, or MANG 386 or MATH 261/300+	3
			15

Seventh Semester

CE	425	Engineering Hydrology	3
CHE	201	Material & Energy Balances I	3
CHEM	215	Analytic Chemistry	4
DRET	314	Computer Graphics	3
GNET	412	Project Management	3
			16

Eighth Semester

GEC	6	The Individual in Society	3
		Technical Specialty Elective[1]	3
CE	446	Solid Waste Management	3
BIOL	240	Microbiology	4
GNET	489	Senior Seminar & Project[2]	2
			15

[1]To be approved by department advisor. See advisor for approved electives.
[2]Capstone course.

REMARKS: Students choosing to double major in BSET-Civil and Environmental must have at least 18 hours between the two degrees.

Engineering Technology – Mechanical
Bachelor of Science

The Bachelor of Science in Engineering Technology - Mechanical (BSET-M) is a plus-two program that builds on and complements associate degrees earned in Mechanical Engineering Technology areas and offers a wide variety of opportunities to students interested in continuing their education in the mechanical engineering technology field. The B.S. Mechanical Engineering Technology program includes both classroom and laboratory experiences. The program stresses the application of engineering and scientific principles and methods to solve practical problems. Included in the curriculum is the study of sciences and mathematics as well as methods, processes, skills, and materials used in industry.

The B.S. Engineering Technology-Mechanical program is accredited by the Engineering Technology Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – telephone: (410) 347-7700.

Program Educational Objectives

Graduates of the BSET-Mechanical program will be able to achieve the following career and professional accomplishments:

- Graduates are demonstrating an awareness of contemporary social and economic issues, and the relationship of those issues to their professional mechanical engineering practice**.**
- Graduates are demonstrating the need to maintain their technical skills and develop new ones through personal development and life-long learning.
- Graduates are capable of conveying technical information through their proficiency in written and spoken communication skills.
- Graduates are demonstrating an appreciation and understanding for cultural and ethnic diversity in the workplace.
- Graduates are demonstrating sufficient understanding of professional and ethical responsibilities to their field and to society.
- Graduates are able to acquire and maintain successful employment using their skills in applied mechanical engineering technology.

Program Educational Objectives

Upon completion of the BSET program in Mechanical Engineering Technology, graduates will be able to

- Operate modern computational tools, including computers and machines for technical problem solving.
- Apply the principles mathematics and science to solve mechanical engineering technology problems.
- Perform competently in a laboratory setting.
- Demonstrate ability to design systems, components, or processes for mechanical engineering technology application.
- Function effectively in a team.
- Identify and address various aspects of design.

- Demonstrate competency in written, oral and graphical communication skills.
- Recognize the need for additional education, training or certification as a means of maintaining and improving the skills necessary for career advancement and personal fulfillment.
- Demonstrate a general knowledge of professional ethical responsibility toward employers, customers, and society.
- Exhibit a broad education and knowledge of contemporary issues in a global and societal context.
- Demonstrate the ability to solve technical problems involving energy, heat transfer, and engineering mechanics.
- Demonstrate knowledge of plant maintenance, scheduling, and operation as well as safety.
- Design and build mechanical engineering components using contemporary automated machines.
- Utilize appropriate software including CAD, to solve mechanical engineering problems.

Careers in Engineering Technology

Baccalaureate degree graduates work as engineering technologists. Application-oriented courses in hydraulics, tool design, machine design, and robotics prepare them for advanced design work, while courses dealing with manufacturing systems analysis, quality control, and industrial management prepare them for supervisory positions in industry. Graduates also find employment as technical sales representatives. Because their education includes management training, they may serve as supervisors in planning, design, construction, and production and maintenance activities. The practical nature of the program has led to an outstanding placement rate for graduates, and graduates have risen to the highest levels in their companies.

Plus-Two Baccalaureate Transfer Options

Students who have completed course work or associate degree programs in engineering-oriented programs at other institutions and wish to continue their studies toward a Bachelor of Science degree in engineering technology may do so. For more information, contact the Chair of the Engineering Technology/Industrial Technology department.

Engineering Technology – Mechanical*
Bachelor of Science

Fifth Semester

DRET	314	Computer Graphics	3
MATH	315	Advanced Technical Math[2]	4
ENGL	305	Technical Writing[3]	3
MEET	316	Dynamics[4]	3
GNET	412	Project Management	3
			16

Sixth Semester

PHYS	102	Introductory Physics II[1]	4
GNET	308	Advanced Computer Apps, or MANG 386 or MATH 261/300+	3
INDT	308	Automated Manufacturing	3
INDT	354	Industrial Materials[5]	3
MEET	435	Energy Conversion Systems	3
			16

Seventh Semester

GEC	5	Artist Expression Elective	3
GEC	6	The Individual in Society	3
GNET	410	"C" Programming for Tech	3
INDT	302	Industrial Safety	3
GEC	9	Non-Western Culture Elective	3
		Technical Specialty Elective[6]	3
			18

Eighth Semester

GEC	7	American Culture Elective	3
GEC	8	Western Culture Elective	3
INDT	410	Plant & Equip Maintenance	3
		Technical Specialty Elective[6]	3
		Open Elective[7]	3
GNET	489	Senior Seminar & Project[8]	2
			17

*Students entering the BSET-M program should satisfy GEC 1, 2, 3, and 4 in their associate degree program.
[1]Transfer students will need a two-course science sequence (GEC 2 Objective) in Physics, Chemistry, or Biology.
[2]Transfer students are required to transfer or complete 3-4 credits in mathematics. Courses listed with the WV HEPC Core Coursework Transfer Agreement will satisfy the GEC 2 Objective.
[3]Students entering the program without an equivalent ENGL 101 & 102 (GEC 1 Objective) sequence will need to complete the sequence prior to taking ENGL 305.
[4]MAE 112 Dynamics may be substituted.
[5]CIET 131 Materials Science or MAE 410 Materials Engineering may be substituted with approval.
[6]To be approved by advisor. The student's overall program, must include a sequence of courses in at least three of the following areas: manufacturing processes (MEET 121/MEET 122), mechanical design (MEET 225/MEET 226), engineering materials (INDT 354/MAE 410), solid mechanics (CIET 115/MAE 243), fluid mechanics (MEET 240/MAE 331), electro-mechanical devices and controls (INDT 384/INDT 484; ELET 274/ELET 436; or industrial operations (INDT 308/INDT 356). The selected MAE courses listed above may be taken with the approval of both of the Department Chairs, if prerequisites are met.
[7]To be approved by advisor. Open elective may be a technical specialty course.
[8]Capstone course.

REMARKS: Students choosing to double major in BSET programs must have at least 18 hours different between the two degrees.

Industrial Technology
Bachelor of Science

Program Description

The Bachelor of Science in Industrial Technology (BSIT) is a plus-two program that builds upon and complements associate degrees earned in a variety of engineering-oriented technology areas. The program is designed to prepare individuals for a wide range of entry-level industrial positions. The program provides a comprehensive education in technology, supplemented by selected professional, industrial, and related academic studies. The program is designed to prepare graduates with a broad range of knowledge and skills necessary for both lateral and vertical mobility at their work place.

As students enter the program, an evaluation of their transcript will be made. This evaluation determines if additional lower division courses will be required to meet the prerequisites. All students must meet the Core Curriculum requirements of the institution for graduation, including an eight-hour laboratory science sequence.

Prospective students include graduates of associate degree programs like:

- Civil Engineering Technology
- Drafting & Design Engineering Technology
- Electrical Engineering Technology
- Mechanical Engineering Technology
- General Studies (with advance approval of program of study by Chair of Engineering Technology/Industrial Technology)
- Engineering–oriented Technology programs at other institutions meeting departmental approval may enter the program directly as juniors based on an evaluation of their transcripts. In all cases, an evaluation of transfer credits will be conducted to validate course requirements. This evaluation determines if additional lower division courses will be required to meet the prerequisites of upper division courses in the curriculum.

Program Objectives

Graduates of the bachelor's degree program in Industrial Technology are prepared for a broad range of technical careers. Graduates apply the technologies of materials, manufacturing processes, automation, CAD/ CAM, production operations, maintenance, power, electro-mechanical systems, industrial organization and management, project management, and safety to the solution of problems in industry. Course outcomes are assessed by exit examinations in each course.

Careers in Engineering Technology

Baccalaureate degree graduates are typically involved in the analysis, design, development, implementation, and/or oversight of more advanced systems and processes. Job titles of recent graduates have included: Plant Manager Intern, Field Technician, Field Engineer, and CAD Operator.

Plus-Two Baccalaureate Transfer Options

Students who have completed course work or associate degree programs in engineering-oriented programs at other institutions and wish to continue their studies toward a Bachelor of Science degree in engineering technology may do so. Transfer agreements have been established with regional institutions offering associate degree programs. For more information, contact the Chair of the Engineering Technology/Industrial Technology department.

Industrial Technology
Bachelor of Science

Fifth Semester

BCOR	320	Legal Environment of Business	3
INDT	352	Power & Transportation Tech	4
ENGL	305	Technical Writing	3
		Technical Elective(s)[1]	4
GEC	4	Contemporary Society	3
			17

Sixth Semester

INDT	302	Industrial Safety	3
INDT	308	Automated Manufacturing	3
INDT	354	Industrial Materials	3
INDT	420	Construction Technology	3
BCOR	360	Ops & Quantitative Bus Methods	3
GEC	8	Western Culture Elective	3
			18

Seventh Semester

BCOR	370	Managing Individuals & Teams	3
INDT	384	Robotics I	3
GEC	7	American Culture Elective	3
		Technical Specialty Elective[3]	3
GNET	412	Project Management	3
			15

Eighth Semester

GEC	5	Artistic Expression Elective	3
GEC	6	The Individual in Society Elective	3
INDT	356	CAD/CAM Systems	3
INDT	410	Plant & Equip Maintenance	3
		Restricted Elective(s)[4]	3
GNET	489	Senior Seminar & Project[2]	2
			17

[1]Subject to approval of the advisor. Selected engineering courses may be taken with the approval of both the advisor and the Chair of Engineering Technology department, if prerequisites are met.
[2]Capstone course.
[3]Technical Specialty Electives can be chosen from areas such as, but not limited to computer-aided drafting, electronics, civil, mechanical, industrial technology, etc. Mechanical Engineering Technology graduates should also take DRET 314 Computer Graphics and PHYS 102 Introductory Physics II.
[4]For students who have completed only 6 hours of math in their associate degree program, MANG 386 Business Statistics or MATH 117 Technical Calculus shall be the required Restricted Elective.

Typical Technical Specialty Electives

CIET	382	Environmental Engineering Technology
DRET	315	Advanced CAD
ELET	274	Control Systems Technology
ELET	171	DC Circuit Analysis
ELET	172	AC Circuit Analysis
MEET	435	Energy Conversion Systems

Remarks: Students entering the degree program need to transfer course credits that satisfy GEC Objectives 1, 2, 3, & 9. If those credits are not transferred, the courses will need to be taken to satisfy GEC graduation requirements.

Biology
Bachelor of Science

The Biology Program covers all aspects of the organism, from molecular and biochemical pathways through anatomy and physiology of organisms to the structure of populations, communities, landscapes and ecosystems. The program provides grounding in mathematics and other natural science disciplines necessary for the understanding of the organism, such as chemistry, organic chemistry and physics. By careful choice of biology and restricted electives, students can tailor their educational experience to prepare for professional school, graduate school or entry into the workforce upon graduation.

The designation of 10 restricted elective hours in the program provides the student with the opportunity to select additional courses from the disciplines of biology, chemistry, physics, math, computer science, business, foreign language, psychology, health sciences, engineering or other disciplines which might be helpful in biologically oriented careers. In addition to traditional coursework, students also have the opportunity to engage in research projects selected from a variety of biological disciplines. (Students who select electives in any science or technical areas may need additional courses to meet prerequisites.) The restricted electives must be approved by the assigned biology advisor. For students who have reached a more advanced level in mathematics upon graduation from high school and meet ACT score requirements, Calculus I and II may be substituted for College Algebra and Trigonometry. Biology majors must earn a "C" or better in the freshman biology courses to enter upper division BIOL courses. During the last semester of the program, students must take the exit exam in biology. Students are also expected to complete a program of volunteer work to fulfill the college requirement for citizenship.

Program Objectives

Upon graduation, students will be prepared to:

- Pursue advanced degrees in biology and related fields or professional degrees, including medicine, dentistry, veterinary medicine, pharmacy and other health related fields.
- Directly enter a broad range of career pathways in industry and federal or state governments which require a baccalaureate degree in science.

Program Learning Outcomes

Upon graduation, students of the biology program will be able to:

1. Apply scientific method to solving problems.
    a. Formulate a hypothesis and alternate hypotheses
    b. Design experiments to test hypotheses.
    c. Collect data.
    d. Analyze data statistically and graphically
    e. Interpret and report data
2. Communicate effectively in writing and orally.
3. Evaluate sources of information through a scientific lens.
    a. Perform search of primary scientific literature.
    b. Interpret scientific papers.

c. Summarize research results from primary sources.
d. Synthesize information from a variety of sources into a coherent argument.

4. Develop a working vocabulary in evolution, ecology, genetics, anatomy, physiology, cellular, molecular, and organismal biology.
5. Explain and apply basic concepts in cell and molecular biology, evolutionary theory, human biology, genetics and ecology.
6. Demonstrate skills in the use of equipment and apply safety practices in the laboratory and field settings

Biology
Bachelor of Science

First Semester

BIOL	111	General Biology	4
ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	Freshman Seminar (GEC 6)	1
MATH	126	College Algebra (GEC 2)	3
GEC	3	General Education Curriculum	3
GEC	4	General Education Curriculum	3
			17

Second Semester

BIOL	112	General Biology	4
ENGL	102	Composition & Rhetoric (GEC 1)	3
MATH	128	Trigonometry (GEC 2)	3
GEC	5	General Education Curriculum	3
GEC	9	General Education Curriculum	3
			16

Third Semester

BIOL		Human Bio: BIOL 230 or 233	4
CHEM	115	College Chemistry (GEC 2)	4
PHYS	101	Physics	4
ENGL	305	Technical Writing	3
			15

Fourth Semester

BIOL	240	Microbiology	4
CHEM	116	College Chemistry (GEC 2)	4
PHYS	102	College Physics	4
STAT	211	Introduction Stat Inference	3
			15

Fifth Semester

BIOL		Botany Elective	4
CHEM	233	Organic Chemistry	3
CHEM	235	Organic Chemistry Lab	1
BIOL		Biology Elective	4
		Restricted Elective(s)	3
		Unrestricted Elective(s)	2
			17

Sixth Semester

BIOL	303	Genetics	4
CHEM	234	Organic Chemistry	3
CHEM	236	Organic Chemistry Lab	1
BIOL	461	Principles of Evolution	3
GEC	6	General Education Curriculum	3
GEC	7	General Education Curriculum	3
			17

Seventh Semester

BIOL	416	Cell Biology	4
BIOL		Zoology Elective	4
BIOL	494	Seminar: Capstone	1
GEC	8	General Education Curriculum	3
		Restricted Elective(s)	3
			15

Eighth Semester

BIOL	466	Ecology	4
BIOL		Biology Elective	4
		Restricted Elective(s)	4
		Unrestricted Elective(s)	4
			16

Biology Minor

24 semester hours minimum including BIOL 111, 112, plus 16 hours BIOL courses which must include at least 8 credit hours of 300+ level courses.

Chemistry
Bachelor of Science

Chemistry is the study of the composition, structure and properties of matter. Chemists work in the growing fields of biotechnology, environmental science, catalysis, materials science, information and computer technologies, and many others. The study of chemistry is excellent preparation for medical, pharmacy, dental, and veterinary schools. Chemistry is also an excellent field of study to prepare for many other professional careers like patent law, chemical sales, and technical writing.

A total of 129 hours minimum is required for the Bachelor of Science in Chemistry. The following courses are required by the Chemistry Department: CHEM 115, 116, and 215 or CHEM 117 and 118; CHEM 233, 234, 235, 236, 310, 313, 346, 347, 348, 349, 422, 424, 494; 4 hours of CHEM 497; MATH 155, 156, 251, 261; PHYS 111, 112, ENGL 305; 9 hours of 400-level chemistry electives; and 24 hours of restricted electives. The 24 hours of restricted electives are chosen from a list approved by the Chemistry Department. Courses required by the Chemistry Department account for 103 to 104 of the hours required for the Bachelor of Science in Chemistry. The core curriculum requirements account for 25 hours. Students must pass an assessment exam in inorganic chemistry, chemical analysis and instrumental methods of chemical analysis, organic and bioorganic chemistry, and calculus-based physical chemistry during their seventh and/or eighth semester.

In addition to the general education learning outcomes listed elsewhere in the catalog, the Chemistry Department's Bachelor of Science program is designed to meet broad educational objectives and learning outcomes, which prepare students:

- to apply fundamental chemical concepts and relationships in the solution of diverse scientific problems.
- with knowledge and application of chemical analytical instrumentation, experimental design, and scientific data collection and interpretation.
- with diverse laboratory skills and techniques.
- with knowledge and application of good laboratory safety practices and environmental responsibility.
- with the ability to effectively communicate technical information through writing and speaking.
- for professional employment in the various scientific fields or to continue with advanced study, which may include graduate work in business, the sciences, health professions or law.

Chemistry
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric	3
WVUE	191	Freshman Seminar	1
CHEM	115	Fundamentals of Chemistry I	4
MATH	155	Calculus I	4
GEC	3	The Past and Its Traditions	3
			15

Second Semester

ENGL	102	Composition & Rhetoric	3
CHEM	116	Fundamentals of Chemistry II	3
MATH	156	Calculus II	4
PHYS	111	Phys for Science & Engr I	4
GEC	4	Contemporary Society	4
			18

Third Semester

CHEM	233	Organic Chemistry I	3
CHEM	235	Organic Chemistry I Lab	1
CHEM	215	Analytic Chemistry I	4
MATH	251	Multivariable Calculus	4
PHYS	112	Phys for Science & Engr II	4
			16

Fourth Semester

CHEM	422	Chemistry of Inorganic Compd	3
CHEM	423	Inorganic Synthesis Lab	1
CHEM	234	Organic Chemistry II	3
CHEM	236	Organic Chemistry II Lab	1
CHEM	261	Differential Equations	4
GEC	5	Artistic Expression Elective	3
			15

Fifth Semester

CHEM	346	Physical Chemistry I	3
CHEM	347	Physical Chemistry I Lab	1
ENGL	305	Technical Writing	3
GEC	6	The Individual in Society Elective	3
		Restricted Elective(s)	6
			16

Sixth Semester

CHEM	310	Analytic Chemistry II	3
CHEM	313	Analytic Chemistry II Lab	1
CHEM	348	Physical Chemistry II	3
CHEM	349	Physical Chemistry II Lab	1
GEC	7	American Culture Elective	3
		Restricted Elective(s)	6
			17

Seventh Semester

CHEM	494	Seminar in Chemistry	1
CHEM		Chemistry Elective(s)	6
GEC	8	Western Culture Elective	3
		Restricted Elective(s)	6
		Assessment Examination	
			16

Eighth Semester

CHEM	497	Research Practicum	4
GEC	9	Non-Western Culture Elective	3
CHEM		Chemistry Elective	3
		Restricted Elective(s)	6
			16

For Chemistry Minors: A total of 24 hours minimum is required including CHEM 115, 116, 215, 233, 234, 235, 236, and CHEM 346 and 347 or CHEM 348 and 349. The CHEM 117/118 sequence and an additional 200-level or higher course can replace the CHEM 115/116 and CHEM 215.

Information Systems (IS)
Bachelor of Science

The ever increasing use of technology has taken almost every business, non-profit organization, and government agency to a drastically different place from where they were only decades ago. Computers and the Internet have allowed companies to conduct operations, utilize resources, and sell products in almost any area of the world. Information systems specialists analyze the complex operational problems of private and public industry; and design, build, and implement innovative software solutions for improving operations from both a technological and business perspective.

BACHELOR OF SCIENCE IN INFORMATION SYSTEMS (BSIS)

WVU Tech Information Systems program is designed to train highly skilled professionals with expertise in network management and administration, database management, computer systems management, and website development. The program curriculum contains 17 courses taught by Computer Science and Information Systems faculty that are specially developed for Information Systems majors. They include courses such as Database Management, e-Commerce, and Computer Security. Those courses are supplemented by highly specialized Business Management courses such as Visual Basic for Business applications, Business Information Systems, and Business Statistics. For elective requirements, the department offers a wide variety of courses on computer systems, programming, computer networks, and special topics such as artificial intelligence, image processing, and computer graphics. Students have the opportunity to learn more theoretical aspects of computing, other programming languages, advanced programming concepts, or other applications of computing by taking Computer Science electives of their interest.

Program Educational Objectives:

Graduates will be able to:

- Enter the professional practice in information systems or pursue graduate studies.
- Develop and maintain information systems in a professional environment.
- Deal responsibly and ethically with societal issues and engage in lifelong learning.
- Communicate effectively with different audiences and work effectively in teams.

Student Outcomes:

By the time of graduation the BS degree in Information Systems at WVU Tech enables students to attain:

- An ability to apply knowledge of computing and mathematics appropriate to the program's student outcomes and to the discipline.
- An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
- An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
- An ability to function effectively on teams to accomplish a common goal.
- An understanding of professional, ethical, legal, security and social issues and responsibilities.
- An ability to communicate effectively with a range of audiences.
- An ability to analyze the local and global impact of computing on individuals, organizations, and society.

- Recognition of the need for and an ability to engage in continuing professional development.
- An ability to use current techniques, skills, and tools necessary for computing practice.
- An understanding of processes that support the delivery and management of information systems within a specific application environment.

Information Systems
Bachelor of Science

First Semester

ENGL	101	Composition & Rhetoric	3
ISYS	101	Intro to Info Systems I	3
MATH	123	Finite Math	3
CS	121	Computer Science I	4
WVUE	191	First Year Seminar	1
			17

Second Semester

ENGL	102	Composition & Rhetoric	3
ISYS	102	Intro to Info Systems II	3
MATH	150	Introduction to Calculus	3
CS	122	Computer Science II	4
GEC	4	Issues of Contemporary Society	3
			16

Third Semester

ACCT	210	Principles of Accounting I	3
ISYS	115	Discrete Structures	3
CS	231	Intro to Computer Organization	3
GEC	3	The Past and Its Traditions	3
GEC	6	The Individual in Society	3
			15

Fourth Semester

ISYS	270	Linux	3
CS	324	Data Base Management	3
CS	222	Software Engineering	3
ECON	202	Prin of Macroeconomics (GEC 8)	3
		Elective	3
			15

Fifth Semester

CS	365	Computer Languages	1
CS	321	Intro to Networking	3
ISYS	325	C#	3
MANG	386	Business Statistics	3
GEC	5	Artistic Expression	3
		Technical Elective ***	3
			16

Sixth Semester

ENGL	305	Technical Writing (W)	3
ISYS	366	e-Commerce	3
GEC	7	Non-Western Culture	3
		Elective	3
		Technical Elective***	3
			15

Seventh Semester

ISYS	480	Senior Design Seminar	2
MANG	420	Business Info. Systems	3
GEC	2	Lab Science	4
GEC	9	American Culture	3
		Technical Elective***	3
			15

Eighth Semester

ISYS	481	Senior Design Project	3
CS	465	Intro to Computer Security	3
CS	491	Professional Field Experience 1	4
GEC	2	Lab Science Sequence*	4
			14

***Technical electives must be chosen from the approved list.

Total Hours 120

Mathematics
Bachelor of Science

Mathematics is the foundation for many of the natural sciences and, as knowledge is expanded in these sciences, new demands are made on mathematics to provide ideas to be used in advancing the sciences. Older sciences such as physics, chemistry, and engineering depend on mathematics, as do a large number of new and sophisticated subjects. The student's career in mathematics might include college teaching and research, computers, statistics, and many others.

Note: Mathematics Major: 42 semester hours minimum including MATH 155, 156, 251, 261, 283, 341, 441, 448, 451, 452, 496, and six hours in other 300 or 400 level Math courses.

Mathematics Minor: 25 semester hours minimum including MATH 155, 156, 251, 261, 441, and six hours chosen from MATH 283 or other 300 or 400 level Math courses.

MATH 315 may not be used as credit toward a Mathematics major or Mathematics minor. Technical electives to be chosen from an approved list. See the Mathematics Department chair.

Program Learning Outcomes

The graduates of the Mathematics program

1. Should be able to attend graduate school or find employment in industry or government.
2. Will have a rounded education that encourages and supports meaningful dialogue with individuals from other disciplines especially sciences and engineering.
3. Will be prepared to participate in lifelong learning opportunities.

Program Learning Outcomes

The graduates of the Mathematics program

1. Will be critical thinkers and problem solvers
2. Will be able to understand the concepts, solve the problems, and prove theorems in at least three of the four major areas of mathematics-Algebra, Analysis, Applied Mathematics, and Geometry/Topology.
3. Will be able to develop computer programs to implement computational algorithms.
4. Will be able to communicate effectively.

Mathematics
Bachelor of Science – Business Track

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	Freshman Seminar	1
MATH	155	Calculus 1 (GEC 2)	4
CS	121	Computer Science I	4
GEC		Laboratory Science (GEC 2)	4
			16

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
MATH	156	Calculus 2 (GEC 2)	4
CS	122	Computer Science II	4
GEC		Lab Science Sequence (GEC 2)	4
			15

Third Semester

MATH	283	Intro to Concepts of Mathematics	3
MATH	251	Multivariable Calculus	4
ACCT	201	Principles of Accounting I	3
ENGL	305	Technical Writing	3
GEC	3	The Past and Its Traditions Elective	3
			16

Fourth Semester

MATH	261	Elementary Differential Equations	4
MATH	441	Applied Linear Algebra	3
ACCT	202	Principles of Accounting II	3
GEC	4	Contemporary Society	3
			13

Fifth Semester

MATH	448	Probability & Statistics	3
ECON	202	Prin of Macroeconomics	3
GEC	5	Artistic Expression Elective	3
		Elective(s)	3
		Technical Elective(s)	3
			15

Sixth Semester

BCOR	370	Managing Individuals & Teams	3
MATH	341	Introduction to Alg Structures	3
ECON	201	Prin of Microeconomics	3
GEC	6	The Individual in Society Elective	3
		Elective(s)	4
			16

Seventh Semester

FINC	325	Financial Management I	3
MATH		Elective (300 or 400 level)	3
GEC	7	American Culture Elective	
GEC	8	Western Culture Elective	3
		Technical Elective(s)	3
			15

Eighth Semester

FINC	326	Financial Management II	3
MATH	496	Senior Thesis	1
MATH		Elective (300 or 400 level)	3
GEC	9	Non-Western Culture Elective	3
		Technical Elective(s)	3
			14

Technical electives must be chosen from an approved list – see department chair.

Mathematics
Bachelor of Science – Classic Track

First Semester

ENGL	101	Composition & Rhetoric (GEC 1)	3
WVUE	191	Freshman Seminar	1
MATH	155	Calculus 1 (GEC 2)	4
CS	121	Computer Science I	4
GEC		Lab Science Sequence (GEC 2)	4
			16

Second Semester

ENGL	102	Composition & Rhetoric (GEC 1)	3
MATH	156	Calculus 2 (GEC 2)	4
CS	122	Computer Science II	4
GEC		Lab Science Sequence (GEC 2)	4
			15

Third Semester

MATH	283	Intro to Concepts of Math	3
MATH	251	Multivariable Calculus	4
PHYS	111	Physics for Sci & Engr I	4
GEC	3	The Past and Its Traditions Elective	3
			14

Fourth Semester

MATH	261	Elementary Differential Equations	4
GEC	4	Contemporary Society Elective	3
		Electives	3
		Technical Elective(s)	3
		Elective(s)	3
			16

Fifth Semester

ENGL	305	Technical Writing	3
MATH	441	Applied Linear Algebra	3
GEC	5	Artistic Expression Elective	3
		Technical Elective(s)	3
		Elective(s)	3
			15

Sixth Semester

MATH	448	Probability & Statistics	3
MATH	341	Introduction to Alg Structures	3
GEC	6	The Individual in Society Elective	3
		Technical Elective(s)	3
		Elective(s)	3
			15

Seventh Semester

MATH	451	Introduction to Real Analysis 1	3
MATH		Elective (300 or 400 level)	3
GEC	7	American Culture Elective	3
GEC	8	Western Culture Elective	3
		Technical Elective(s)	3
			15

Eighth Semester

MATH	452	Introduction to Real Analysis 2	3
MATH	496	Senior Thesis	2
MATH		Elective (300 or 400 level)	3
GEC	9	Non-Western Culture Elective	3
		Technical Elective(s)	3
			14

Technical electives must be chosen from an approved list—see department chair.

6. Course Descriptions

Sample Course Description

***Courses not offered every year are indicated by:**
F-Odd: Fall Semester, odd-numbered years
F-Even: Fall Semester, even-numbered years
S-Odd: Spring Semester, odd-numbered years
S-Even: Spring Semester, even-numbered years

CE 461 STRUCTURAL ANALYSIS 2 (3-0)3 F-Even
(CE 361, MATH 261, §CE 462 or §CE 463)
The "CE" on the left top line stands for Civil Engineering, the Subject area; the "461" is the number of the course; "Structural Analysis" is the course title.
The "(3-0)" means three hours of lecture and no hours laboratory. The "3" on the right represents the credit hours of the course.
"F-Even" means the course is offered in the Fall Semester of even years only.
The "CE 361, MATH 261" are prerequisite courses and as such should be successfully completed prior to taking the course.
If a course is a co-requisite, it may be taken prior to taking the course or at the same time. The symbol § is used to designate a co-requisite course.

Accounting (ACCT)

ACCT 201 Principles of Accounting (3-0)3 F
(Math ACT score of 19 or better)
The accounting cycle from the analysis of business transactions through the preparation of financial statements; basic theory and practice with respect to accounting for assets and equities.

ACCT 202 Principles of Accounting (3-0)3 S
(ACCT 201)
Utilization of accounting information for purposes of managerial control and decision making; cost concepts, profit and financial budgeting, analysis of financial statements.

ACCT 244 Health Care Accounting (3-0)3
(ACCT 201)
Emphasis on hospital and other health care facilities' record keeping and reporting. Review of accounting cycle; balance sheet, income statement and cash flow statement; principles of fund accounting; principles of budgeting, cost finding and analysis; and interpretation of financial statements.

ACCT 293 Special Topics (1-6-0)1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

ACCT 311 Intermediate Accounting (3-0)3 F
(ACCT 201 with "C" or better & ACCT 202 with "C" or better).
Development of accounting theory and practice, with emphasis on asset accounting.

ACCT 312 Intermediate Accounting (3-0)3 S
(ACCT 311 with "C" or better)
Theory and practice with respect to accounting for liabilities and stockholder's equity; special problems peculiar to financial accounting; analysis of financial statements and changes in financial position.

ACCT 322 Accounting Systems (3-0)3 S
(ACCT 311)
Analysis of data processing fundamentals and information systems analysis, design, and implementation, including necessary computer hardware and software components with particular reference to accounting information systems and the controls necessary there in.

ACCT 331 Managerial Accounting (3-0)3 F
(ACCT 202; for non-accounting majors; not available to students receiving credit for ACCT 431)
Analysis of internal accounting practices with emphasis on use of data for performance evaluation, control, motivation through accounting systems, and decision-making.

ACCT 348 Financial Statement Analysis (3-0)3 S
(ACCT 201)
This course will include an in-depth review of financial statements; financial ratios and fraud analysis; industry average comparisons; financial services and library sources; and extended utility of ratios. Also cross-listed as FIN 328.

ACCT 415 Advanced Accounting (3-0)3 F
(ACCT 312)
Accounting for business combinations, consolidations, foreign currency translation, governmental and nonprofit entities, and equity method investment accounting.

ACCT 420 Fraud Examination (3-0)3 F
(ACCT 201)
An overview of fraud related concepts; management fraud; financial statement fraud; fraud prevention and detection techniques; elements of fraud investigation; and interviewing process.

ACCT 421 Fraud Management: Legal/Ethical Issues (3-0)3 S
Offers a basic understanding of what motivates criminals to commit fraud; legal elements of fraud; rules of evidence; key legal rights and privacy issues; testifying; and non-control deterrence and methods used to implement it.

ACCT 422 Adv. Fraud Investigation/Analysis (3-0)3 S
(ACCT 420)
This course includes an in-depth review of techniques used in investigating financial fraud. Topics include: investigating theft and concealment; sources of information; interviewing and testifying.

ACCT 423 Information Security and Controls (3-0)3 F
This course covers security issues in a computerized environment. Topics include: security guidelines, implementation, and cost issues; risk management and control.

ACCT 432 Advanced Cost Management (3-0)3 F
(ACCT 202 or department consent)
Advanced cost management concepts and techniques with emphasis on cost measurement systems and the evaluation and management of performance.

ACCT 441 Income Tax Accounting (3-0)3 F
(ACCT 311)
Overview and survey of Federal income tax principles for individuals and simple corporations with emphasis on gross income, exemptions, and deductions, capital gains and losses, and tax credits.

ACCT 442 Income Tax Accounting (3-0)3
(ACCT 441)
The study of federal income tax treatment of partnerships, corporations and estates, and the treatment of those property transfers subject to the Federal Gift Tax, together with an introduction to tax research and tax procedure.

ACCT 449 Case Studies in Fraud Examination and Management (3-0)3 Summer
(ACCT 422)
This capstone course integrates the knowledge and skills acquired during the fraud-related course work in the program. Several cases will be assigned for discussion and written analysis.

ACCT 450 Accounting Technology (3-0)3 S
(ACCT 322)
Survey and application of computerized accounting software systems set up, general ledger, accounts receivable, accounts payable, payroll, and preparation of financial statements.

ACCT 451 Auditing Theory (3-0)3 F-Even As needed
(ACCT 312)
Auditing fundamentals, objectives, ethics, statistical samplings, standards and procedures. Emphasis on FASB and SAS disclosures.

ACCT 461 Accounting for Non-business Entities (3-0)3 S-Even As needed
(ACCT 312)
Accounting, reporting, and budgeting for governmental and nonprofit entities and the use of fund accounting data for planning and control.

ACCT 491 Professional Field Experience (3-0)3
(Department consent)
May be repeated up to a maximum of 6 hours. Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ACCT 493 Special Topics (1-6-0)1-6
(Department consent)
Special topics relevant to accounting. (Maximum of 6 semester hours
in any or all courses numbered 493 offered by the college may be applied towards bachelor's degree.)

ACCT 495 Independent Study 1-6
(Department consent)
Students will develop and complete a program of specialized studies under the supervision of a cooperating instructor. This program may not include credit for internship or employment experience.

Art History (ARHS)

ARHS 101 Landmarks of World Art (3-0)3
The course encompasses the study of outstanding works of the visual arts from past times to the present: (1) sources of the creative impulse, and (2) relationship of art to the civilization producing it.

Athletic Coaching Education (ACE)

ACE 100 The Total Athlete (3-0)3 S
In-depth analysis of topics associated with being an athlete, i.e., attitude, academics, media, peer pressure, racism in sports, recruiting, AIDS, rape, stress/time management, suicide, sportsmanship, ethics, drugs (types and testing), agents, coping with adversity, eating disorders, gambling, life after sports, non-revenue sports, pro sports, violence in sports, gender equity, and personal growth.

ACE 102 Coaching Education (3-0)3
An in-depth look into the various aspects of coaching education.

ACE 103 Coaching Special Olympics (3-0)3
An in-depth look into the techniques and methods used in coaching Special Olympics.

ACE 105 Nutrition for Coaches (3-0)3 F
General nutrition and dietary requirements to aid coaches and their athletes.

ACE 106 Introduction to Athletic Coaching (3-0)3 F
Overview of athletic coaching profession including career opportunities, critical current issues/trends, professional standards and the professional organizations.

ACE 168 Sport Officiating (2-0)2 S
Study of officiating.

ACE 256 Principles & Problems of Coaching (3-0)3 F
Designed to students with principles and problems of interscholastic athletic coaching.

ACE 265 Diversity and Sport (3-0)3 S
Covers historical and current topics relevant to diversity in sport as it relates to current sport practices. Practical strategies for facilitating acceptance of diversity within individual and team sports are discussed.

ACE 315 Sport for the Exceptional Athlete (3-0)3 F
(Students must be admitted to the ACE program to take this course)
Examines past, present, and future of sport for athletes with disabilities and those competing at the Master-level. The focus is on the coaching of these unique populations of competitive and recreational athletes.

ACE 330 Coaching Education Administration (3-0)3 S
(Students must be admitted to the ACE program to take this course)
An administrative focus of leadership, finance, fundraising, planning, facility development, personnel supervision, public relations, rules and regulations, purchase and care of equipment, and the conducting of athletic events.

ACE 359 Techniques of Coaching: Track (2-0)2
(Students must be admitted to the ACE program to take this course)
Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 361 Techniques of Coaching: Soccer (2-0)2
(Students must be admitted to the ACE program to take this course)
Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 362 Techniques of Coaching: Basketball (2-0)2
(Students must be admitted to the ACE program to take this course)
Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 364 Techniques of Coaching: Football (2-0)2
(Students must be admitted to the ACE program to take this course)
Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 365 Techniques of Coaching: Baseball (2-0)2
(Students must be admitted to the ACE program to take this course)
Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 366 Techniques of Coaching: Volleyball. (2-0)2
(Students must be admitted to the ACE program to take this course)
Designed to permit students to gain athletic coaching experience through a supervised on-site experience with a varsity athletic team.

ACE 368 Sport Movement Analysis (3-0)3 F
(Students must be admitted to the ACE program to take this course)
This course is designed to introduce a prospective coach to the principles of human movement.

ACE 369 Basic Strength & Conditioning for Coaches (3-0)3 F
(EXPH 365 or PET 125 & ACE 368, students must be admitted to the ACE program to take this course)
Present basic exercise performance methodologies to assist in coaching athletes. Types of training include speed drills, agility drills, conditioning workouts, flexibility exercises, balance-improvement drills, and proper training environment safety techniques.

ACE 410 Training Theories for Coaches (3-0)3 S
(PET 124, PET 125 & EXPH 365, students must be admitted to the ACE program to take this course)
Application of sport training theories to building, designing and assessing athlete training plans, seasonal team development and long term athlete development from physical literacy to peak performance at all participation levels.

ACE 450 Career Planning in Sport 1-3 S
(Students must be admitted to the ACE program to take this course, department consent)
Presentation and discussion of topics of mutual concern to students and faculty.

ACE 488 Practicum Coaching Exceptional Athletes (3-0)3 S
(ACE 315, students must be admitted to the ACE program to take this course)
Integration of theoretical knowledge and developmental issues with practical field experiences working with exceptional athletes.

ACE 489 Practicum Coaching Youth Sport (3-0)3 F
(ACE 410, students must be admitted to the ACE program to take this course)
Integration of theoretical knowledge and developmental issues with practical field experiences in coaching youth.

ACE 491 Professional Field Experience 1-18
(Department consent, students must be admitted to the ACE program to take this course)
May be repeated up to a maximum of l8 Hours. Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

ACE 493 Special Topics A-Z. (1-6-0)1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

ACE 495 Independent Study 1-6
Faculty supervised study of topics not available through regular course offerings.

Athletic Training (ATTR)

ATTR 121 Sport Injury Control and Management. (3-0)3 S
Training, conditioning, protection, and other injury prevention measures. First aid, emergency service, and care related to physical education and athletics.

Aviation Management (AVIA)

AVIA-480 Human Factors in Flight (3-0) 3 F
A comprehensive look at human factors in aviation, including human error, fatigue, body rhythms, sleep, fitness and performance; vision and visual illusions; motivation and leadership; communication; attitudes and persuasion; training and training devices; education and application.

AVIA-483 Air Transportation (3-0) 3 F
A study of both the historical and present aviation industry. Subjects include air commerce, domestic and international aviation regulation and regulatory agencies, legal issues in air transportation, air carrier aircraft, and general aviation aircraft.

AVIA-485 Aviation Economics (3-0) 3 S
A study of management practices in the airline industry. Topics include output, unit cost, traffic, and yield, operating expenses and revenues and the corresponding relationships that drive profit and loss.

AVIA-486 Aviation Systems Management (3-0) 3 S
Explores management methods used by aviation crews, management, suppliers, service providers, and manufacturers. Focuses on decision analysis, decision research, peer to peer communication, sales management, emotional intelligence, and the Johari Window.

AVIA-488 Aviation Stories (3-0) 3 S
Develops an understanding of how flying has come to be incorporated into literature since the early days of flight. Includes readings from books, journals, and memoirs that deal with the human side of flying.

AVIA-489 Aviation Law (3-0) 3
An overview of the basic principles of aviation law within the U.S. legal system. Areas of emphasis include administrative law; aircraft accidents; aircraft transactions; airports, airspace and aviation security; and labor and employment law.

Biology (BIOL)

BIOL 105 Environmental Biology (3-0)3
Population growth and human impacts on the environment, including ecosystems destruction, biological diversity, pollution, and global climate change are explored to obtain the concepts necessary to understand complex environmental issues of our time.

BIOL 106 ENVIRONMENTAL BIOLOGY LABORATORY (0-3)1 Field and lab exercises exploring fundamental ecological concepts, environmental problems, such as biodiversity, pollution and natural resource utilization.

BIOL 111 General Biology (3-3)4
(§ENGL 101)
A comprehensive introductory course investigating the major areas of modern biology including scientific method, biological molecules, cell structure and function, histology, metabolism and the anatomy and physiology of animals. Laboratory exercises include vertebrate dissection.

BIOL 112 General Biology (3-3)4
(BIOL 111)
A continuation of BIOL-111. Principles of inheritance, molecular genetics, survey of plant and animal diversity, evolution, and ecology. Plant anatomy and physiology.

BIOL 122 Human Sexuality 3
A study of biological, behavioral and societal aspects of sexuality. Issues considered include changing fecundity, social-legal implications, sex roles, sexually transmitted diseases, populations, erotica, aging, dysfunctions, decision-making skills for sex related issues.

BIOL 230 Human Anatomy and Physiology 1 (3-3)4
(BIOL 111 or permission of department) (Part of an eight hour sequence)
Biological principles including biochemistry, cytology, histology, musculoskeletal and nervous systems. Mammal dissection required.

BIOL 231 Human Anatomy and Physiology 2 (3-3)4
(BIOL 230) (Part of an eight hour sequence)
Continuation of BIOL-231 with coverage of regulatory, circulatory, lymphatic, digestive, respiratory, urogenital, and integrative systems. Mammal dissection required.

BIOL 233 Anatomy and Physiology (3-3)4
(BIOL 111, or permission of the department)
A survey of cellular & organismal structure and function of the human body. Mammal dissection required.

BIOL 240 Microbiology (3-3)4
(BIOL 112 or BIOL 231 or BIOL 233 or CHEM 116)
Comprehensive introduction to the biology of microorganisms with special emphasis on bacteria and viruses. Includes aspects of disease prevention and control, and human immunology. Laboratory exercises on physiology, identification, and culturing of bacteria.

BIOL 303 Genetics (3-3)4
(BIOL 112, MATH 126)
A comprehensive course covering aspects of both classic and modern genetics, including heredity, molecular genetics, and population genetics. Laboratory exercises investigate basic principles of inheritance, manipulation of DNA, and bioinformatics.

BIOL 336 Vertebrate Embryology (3-3)4
(BIOL 112)
Study of chordate development with reference to evolution of systems. Follows development from the gametes through ontogeny of selected animals.

BIOL 338 Behavioral Ecology (3-0)3
(BIOL 112, ENGL 102)
Consideration of the influences of environmental factors on short- and long-term regulation, control, and evolution of the behavior of animals.

BIOL 343 Systematic Zoology (2-4)4
(BIOL 112, CHEM 115)
Phylogeny, taxonomy and morphology of invertebrate and vertebrate phyla. Collection, dissection and preservation of specimens.

BIOL 347 Parasitology (3-3)4
(BIOL 112)
The study of parasites and their effects on their host. Parasites of major medical importance to humans and their companion/agricultural animals; evolutionary relationships between parasites and hosts. Laboratory will include observations of preserved and live (if possible) specimens and discussions of current research on evolution of host/parasite relationships.

BIOL 354 Organismal Botany (3-3)4
(BIOL 112, CHEM 115)
Anatomy, growth, reproduction, and biochemical and physiological processes of higher plants; survey of algae, fungi, nonvascular and vascular plants. Laboratory exercises on anatomy, physiology, and ecology of plants.

BIOL 416 Cell Biology (3-3)4
(BIOL 112, CHEM 116)
Study of the structure and function of prokaryotic and eukaryotic cells, with an emphasis on eukaryotes. Areas of focus include biological molecules, membrane structure and function, intracellular sorting, the cytoskeleton, cell adhesion, cell signaling, and bioenergetics. Also includes an introduction to the cells of the immune system, cell death, and cancer. Laboratory exercises emphasize microscopy, sterile technique, and the growth and manipulation of cells in culture.

BIOL 417 Biotechnology (3-3)4
(BIOL 112, CHEM 116)
Study of the structure, function, and regulation of DNA with an emphasis on recombinant DNA technology and related techniques that are used to analyze and manipulate DNA, RNA, and proteins. Also covered are applications of this technology in agriculture, industry, medicine, forensics, and scientific discovery. Examination of appropriate research papers from the scientific literature illustrates the use of specific techniques.

BIOL 440 Comparative Anatomy (3-3)4
(BIOL 112)
A comparative study of chordate anatomy with reference to morphological and physiological adaptations, phylogeny, and systematics. Students dissect representative vertebrates including cat.

BIOL 442 Organismal Zoology (3-3)4
(BIOL 112, CHEM 116)
Mechanisms of environmental adaptation. Physiology, behavior and zoogeography. Laboratory experiments.

BIOL 452 Plant Taxonomy (3-3)4
(BIOL 112)
Classification, phylogeny and morphology of vascular plants. Laboratory and field trip emphasis on West Virginia flora.

BIOL-454 Immunology (3-0) 3
(BIOL 112) A comprehensive course with emphasis on the human immune system. Topics include: immune cells, lymphocyte development, antibodies and antigens, immunoglobulin gene rearrangement and expression, major histocompatibility complex, complement, cytokines, hypersensitivity, autoimmunity, transplantation, and immunodeficiency.

BIOL 461 Principles of Evolution (3-0)3
(BIOL 112, MATH 126 or permission of department)
The historical origin and impact of evolutionary thought; the theory of Natural Selection; principles of population genetics; modern theory in evolutionary biology.

BIOL 466 Ecology (3-3)4
(BIOL 112, CHEM 116)
Principles of environmental biology, population dynamics and evolution. Field trips and lab work.

BIOL-492 Directed Study (1 to 4-0 or 3-3) 1 to 4
(Permission of department)
Directed study, reading, and/or research

BIOL 493 Special Topics in Biology (1 to 4-0 or 3-3) 1 to 4
(Permission of department).
In-depth study of a particular area of biology at an advanced level. May include laboratory.

BIOL 494 Seminar: Capstone (1-0)1
(Permission of department)
Presentation and discussion of topics of mutual concern to students and faculty.

BIOL-495 Independent Study: (0-3 to 0-12) 1 to 6
(Permission of department) Faculty supervised study of topics not available through regular course offerings.

BIOL 497 Research 1- 6
(Open to qualified biology majors with department consent)
Independent research projects.

Business Administration (BUSA)

BUSA 101 Introduction to Business (3-0)3 F
An introduction to the contemporary business world, including international and small business, quality, ethics, and career preparation. The role of accounting, economics, finance, management, and marketing activities are investigated.

BUSA 293 Special Topics (1-6-0)1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

BUSA 493 Special Topics (1-6-0)1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

Business Core (BCOR)

BCOR 320 Legal Environment of Business (3-0)3 F
Explores the relationship of law, government and ethics to business enterprise. Provides overview of legal and ethical issues relevant to business decision-making and planning and the government regulations of business.

BCOR 330 Information Systems and Technology (3-0)3
(CS 101)
Introduces essential information systems concepts for managing competitive firms in a global environment. Utilizes the Internet, and builds skills in decision-making using

spreadsheets, oral communication using presentation graphics, and data management using database software.

BCOR 350 Principles of Marketing (3-0)3
(ECON 201)
Overview of Marketing and the interrelationships between Marketing and other business disciplines. Topics include the management of the product, communication, price, and distribution variables as well as introduction to buyer behavior and marketing research.

BCOR 360 Operations and Quantitative Business Methods (3-0)3 S
(BCOR 370 & MATH 123)
The course is designed to acquaint students with a variety of production and operations management concepts and techniques. Productivity, competitiveness, operations strategy, capacity, location, layout, inventory, forecasting, and supply chain management are key concepts to be covered.

BCOR 370 Managing Individuals and Teams (3-0)3
Topics include traditional management functions, employee motivation, leadership, team dynamics, individual and group decision-making, and individual differences. Additional topics include social responsibility and ethics, diversity, organizational structure and design, organizational control, and managing innovation and change.

BCOR 460 Contemporary Business Strategy (3-0)3 S
(90 Credit hours plus FIN 325 & BCOR 360)
Investigation of components of the business curriculum. Investigation and analysis of current business problems.

Business Law (BLAW)

BLAW 420 Law for the C.P.A. (3-0)3 S
(BCOR 320)
A survey of those areas of commercial and regulatory law with which accountants need familiarity in order to exercise good judgment, practice their profession skillfully and understand their professional responsibility.

Career-Technical Education (CTED)

CTED 100 Teacher Education Orientation (1-0)1
College regulations, State Department of Education Policies and Certifications, effective study habits, use of resources, career opportunities.

CTED 201 Introduction to Career-Technical Education (3-0)3
Purpose, nature and scope of career-technical education for the CTE teacher. General orientation to career technical education instruction.

CTED 301 Occupational Analysis (3-0)3
Analysis procedures for determining career technical curriculum content, determination of course goals and objectives. Involvement of advisory committees in career-technical education.

CTED 302 Course Construction and Planning in Career-Technical Education (3-0)3
Analysis procedures for determining career-technical education curriculum content. Determination of course goals and objectives. Involvement of advisory committees for career-technical education. Factors, principles, and techniques of developing a course of study for a career-technical education program.

CTED 303 Organization and Management of School Shops and Laboratories (3-0)3
Responsibilities of the teacher as a manager, methods of handling tools and supplies, problems of effective shop organization and maintenance, safety administration, job evaluation and selection, group control and management.

CTED 304 Safety in Career-Technical Education (3-0)3
Responsibilities of the teacher in providing a safe learning/working environment for career technical students. The study of effective approaches to accident prevention and an introduction to the laws and regulatory agencies regarding safety management in the classroom and laboratory.

CTED 305 Methods of Examination in Career-Technical Education (3-0)3
An introduction to the methods and techniques for developing and administering written and performance tests. Course includes the charting of student progress and methods for determining student grades for a grading period.

CTED 306 Coordination of Cooperative Career-Technical Education (3-0)3
Background of coordination of cooperative part-time students. Methods and techniques for evaluating and selecting work stations, student selection, placement and follow-up. Role and use of advisory committees, and methods of evaluating a cooperative work experience program.

CTED 307 Computer Applications in Career-Technical Education (3-0)3
This course is designed to introduce students to computer-based instructional technology used in today's classrooms and labs. Included is an introduction to operating systems, application software for instruction and instructional management.

CTED 308 Application of Basic Skills in Career-Technical Education (3-0)3
Methods, techniques and strategies for incorporating the reinforcement of basic skills in career-technical instructional program. Emphasis will be placed on reading, writing, math, oral communication, and critical thinking skills as they apply to occupational specific training. Also addressed in this course is the teaching of job seeking and job keeping skills.

CTED 402 History and Philosophy of Career-Technical Education (3-0)3
Historical influences in the development of vocational education in America and Europe; motivating influences and the implications of philosophy in modern career-technical education.

CTED 404 Career-Technical Guidance (3-0)3
Theories, background, and practices of career-technical education guidance including; promotion, selection of occupations, training programs, placement responsibilities, and follow-up techniques. Relationships between career-technical education guidance programs and other educational and community agencies, including career-technical education.

CTED 409 Coordination of Career-Technical Youth Activities (3-0)3
Purpose and scope of Skills USA and other youth organizations. Application of youth activities within the related classroom instruction in career-technical education. Current

trends in the development and movement of career-technical education activities in America.

CTED 410 Career-Education (3-0)3
Analysis of the role of career-technical education within the area of career education. Organizing a plan for including career-technical education.

CTED 411 Supervision of Career-Technical Education (3-0)3
Supervisory techniques for local, area and state levels; analysis of supervisory needs, duties and responsibilities, cooperation between school, labor management, and public agencies. Emphasis on improvement of instruction.

CTED 413 Advanced Materials for Career-Technical Education (3-0)3
Particular emphasis on developing individually prescribed instructional materials for special teaching areas. Time available for each student to work on an individual basis to complete work assignment.

CTED 414 Metrics in Career-Technical Education (3-0)3
The "SI" metric system, relationship between metric and decimal systems, metric terminology, metric applications in length, area, volume, mass, and temperature, metric to metric conversion, imperial to metric conversions, teaching the metric system, application of the metric system to career-technical specializations.

CTED 415 Audio/Visual Productions in Career-Technical Education (3-0)3
Developing audio/visual equipment. Designing, programming and editing audio/visual productions for career-technical teacher education.

CTED 417 Principles and Techniques in Career-Technical Education (3-0)3
A study of the concepts of Industrial Education. The development of questioning and answering techniques in the career-technical education setting. The selection and correlation of teaching aids.

CTED 418 Demonstrations for Teachers in Career-Technical Education (3-0)3
The presentation of specific demonstration to selected teachers and students in the career-technical teacher's specialization. Critiquing demonstrations of others and comparing techniques employed.

CTED 419 Observations for Teachers in Career-Technical Education (3-0)3
Classroom visitations and written critiques of shops and laboratories in the teacher skill specialization. Observations of the industrial application of job skills in the teacher's specialization. Comparison of industrial and career-technical education shops and laboratories.

CTED 420 School-Community Relations in Career-Technical Education (3-0)3
Organization and planning for a program of school-community relations by the vocational teacher. Emphasis on preparing brochures, displays, news articles, conducting open house activities and working with members of the community.

CTED 421 Teaching Special Students in Career-Technical Education (3-0)3
Instructional planning for individual student needs. Special instructional techniques, and modification of the learning environment/physical setting for special students in career technical education.

CTED 422 Back to Industry Experience 1-6 Hr.
(Department approval)
An occupational specialization updating experience for the in-service, career-technical teacher. In-service teacher will gain new knowledge and skill in an occupational specialization through back-to-industry experience. Hours of credit will vary according to the depth and magnitude of the experience. Credit shall be earned on a pass/fail basis.

CTED 423 Industrial Processes (Occ. Update) 1-3 hours
(Department approval)
Special seminars or workshops designed for specific occupational specialization updating. Special topics shall be designed to provide the in-service, career technical teacher with new knowledge and skill currently required of workers in business and industry. Hours of credit will vary according to the depth and magnitude of the training. Credit shall be earned on a pass/fail basis.

CTED 424 Industrial Processes (Occ. Update) 1-3 hours
(Department approval)
Special seminars or workshops designed for specific occupational specialization updating. Special topics shall be designed to provide the in-service, career-technical teacher with new knowledge and skill currently required of workers in business and industry. Hours of credit will vary according to the depth and magnitude of the training. Credit shall be earned on a pass/fail basis.

CTED 485 Teaching Methods in Career-Technical Education (3-0)3
Correlating shop/lab instruction with classroom instruction. Individual and group instruction using various instruction sheets and materials. Emphasis is given to the four teaching steps in career-technical education. Physical factors relating to classroom and shop/lab methods and techniques.

CTED 486 Senior Project 3-4 Hr.
(Department consent)
Design and completion of Interdisciplinary Project. Requires approval of faculty committee. Investigation of topics not covered in regularly scheduled courses.

CTED-493 Advanced Computer Applications (3-0) 3
Special seminars or workshops designed for specific occupational teaching skills. Special topics to be selected cooperatively by the student and faculty advisor, hours of credit will vary according to the depth and magnitude of the project.

Chemical Engineering (CHE)

CHE 100 Introduction to Chemical Engineering (1-1)2 F
Introduction to engineering practice with an emphasis on Chemical Engineering. Course projects are designed to develop problem solving, teamwork, and communication skills. Project and laboratory work will be provided to demonstrate engineering concepts.

CHE 201 Material & Energy Balances 1 (3-0)3 F
(CHEM 116)
Introduction to chemical engineering fundamentals and calculation procedures, industrial stoichiometry, energy balances, material properties, and transient mass and energy balances.

CHE 202 Material & Energy Balances 2(3-0)3 S
(CHE 201)
Continuation of topics from CHE 201

CHE 312 Separation Processes (3-1)4 S
(CHE 316, CHE 320)
Mass transfer theory and its application to process operations. Use of equilibrium stage and transfer unit concepts in design, diffusional and convective mass transfer, use of mass transfer coefficients Coverage of separations such as distillation, absorption, stripping, extraction, and membrane separations. Equipment design and sizing.

CHE 316 Transport Operations (3-1)4 F
(PHYS 213, MATH 156)
Physical phenomena associated with the movement and processing of fluids, and the generation and transport of thermal energy. Emphasis on quantitative models to design engineering systems and predict performance. Applications of these principles will be demonstrated in a variety of natural and engineering systems.

CHE 318 Particle Processing Operations (2-1)2 S
(CHE 316)
Physical phenomena associated with the movement and processing of particulate solids. Fluid-solid separations, particle formation, solids transport and storage.

CHE 320 Chemical Engineering Thermodynamics (3-0)3 F
(CHE 202, MATH 156)
Equations of state and prediction of thermodynamic properties for pure species and mixtures. Equilibrium thermodynamics of multiphase systems, using equations of state and activity models. Application to operation of processing systems. Reaction equilibrium and prediction of conversion for systems of reactions. Thermodynamic analysis of processes and prediction of performance limits.

CHE 327 Kinetics and Reactor Design (3-0)3 S
(CHE 320)
Kinetic models applied to the analysis and design of chemical reactors. Kinetic rate theory, homogeneous reactions in batch and flow systems, heterogeneous reactions and catalysis. Use of stirred tank and plug flow reactor models, temperature effects, effect of heat transfer, and catalytic reactors. Computer modeling is emphasized for design and analysis.

CHE 330 Modeling & Analysis (2-2)3 F
(MATH 156)
Topics include mathematical modeling of systems, numerical solution of algebraic and differential equations, approximation of mathematical relations.

CHE 350 Chemical Engineering Laboratory (1-3)2 S
(CHE-316)
Planning of experiments, data collection, statistical analysis of experimental data, and reporting of results.

CHE 357 Design Laboratory 1 (0-3)1 F
(§CHE 316, §CHE 320)
Analysis and synthesis in the design of processing systems and products. Economic evaluation, project management, flowsheet development, equipment selection, equipment specification, optimization, computer-aided design, process operability and control, process

safety, and environmental protection. Team and individual projects are primary vehicles for assessment and skill development.

CHE 358 Design Laboratory 2 (0-3)1 S
(§CHE 312, §CHE 327, CHE 357)
Continuation of CHE 357

CHE 411 Advanced Heat Transfer (3-0)3 Elective
(CHE 316 or MAE 423)
Heat transmission in the processing industries, with an emphasis on the design of equipment used to reclaim thermal energy, supply process energy needs, and remove heat in critical cooling operations.

CHE 417 Advanced Separation Processes (3-0)3 Elective
(CHE 312)
Analysis and design of diffusional operations such as distillation, extraction, adsorption, and membrane separations. Solution of mathematical models of binary and multi-component separations, equipment selection, energy consumption, and selection of appropriate thermodynamic models. Computer-aided design is emphasized.

CHE 426 Multiphase Reactor Design (3-0)3 Elective
(CHE 327)
A study of multiphase reactor designs, with particular emphasis on fluidized and packed bed catalytic reactors. Development of kinetic models. Evaluation of mixing, heat transfer, and mass transfer effects on reactor scale-up. Reactor modeling and numerical solution will be used to augment design and analysis studies.

CHE 435 Chemical Process Control (3-0)3 F
(CHE 330, CHE 327)
Process control rationale and terminology. Dynamic modeling and response characteristics of process systems, analysis and synthesis of simple control systems, and coverage of control hardware, including actuators and sensors.

CHE 450 Unit Operations Laboratory 1 (1-3)2 F
(CHE 350)
Continuation of CHE-350. Primary emphasis is on separation operations.

CHE 451 Process Engineering Laboratory 2 (1-3)2 S
(CHE 450, CHE 435) W
Continuation of CHE 450. Experiments focus on reaction kinetics and reactor operation, control loop configuration and tuning, and dynamic response of systems. This course satisfies the GEC 2 writing requirement.

CHE 457 Design Laboratory 3 (1-3)2 F
(CHE 358)
Continuation of CHE 358

CHE 458 Design Laboratory 4 (1-3)2 S
(CHE 457)
Continuation of CHE 457.

CHE 461 Polymer Science and Engineering (3-0)3 Elective
(Department consent)
Classification of polymers, production and forming processes, polymer chemistry, material properties, engineering applications, and new developments.

CHE 493 Special Topics (variable credit)1-3 Elective – as required
(Department consent)
Course covers a chemical engineering topic of interest to the students and faculty.

CHE 496 Senior Thesis (variable credit)1-3 Elective – as required
(Department consent)
Research project or applied engineering problem. Project plan, formal report, and presentation are required. Project must have a faculty sponsor.

Chemistry (CHEM)

CHEM 100 Selected Topics in Freshman Chemistry 1-4
(Department consent)
Primarily for students who transfer course credit from other institutions that are not equivalent to a course offered by the WVU Tech Department of Chemistry. Students study only the components missing from the transferred course. A student may receive credit for this course more than once to supplement different transferred courses. A thorough description of the course content is filed with the student's permanent record when the student receives a grade for this course. 1 to 4 hr. lec. and/or 3 to 6 hr. lab.

CHEM 110 Introduction to Chemistry (2-0)2 F
Required for students whose performance on a departmental placement examination indicates need for introductory work before enrolling in other chemistry courses. Scientific terminology and concepts; chemical arithmetic; chemical symbols, formulae and equations; mole concepts; problem solving. May not count for credit toward graduation if taken after credit for another course in chemistry has been earned.

CHEM 111 Survey of Chemistry I (3-3)4 F
(Prerequisite or Concurrent: MATH 125, MATH 126 or MATH 117 or ACT math score of 23 or higher)
Designed primarily for students taking only one year of college chemistry. Atomic structure; chemical bonding; acids, bases, and salts; periodicity; properties of gases, liquids, and solids; stoichiomerty; oxidation-reduction. (Students may not receive credit for CHEM 115, or 117 and for CHEM 111. CHEM 111 and 112 cannot be used as pre-requisite courses for organic chemistry; students anticipating the possibility of taking organic chemistry must have credit for CHEM 115 and CHEM 116 or for CHEM 117 and CHEM 118.)

CHEM 112 Survey of Chemistry II (3-3)4 S
(CHEM 111)
A continuation of CHEM 111. Nuclear chemistry; air and water pollution; useful natural materials; consumer chemistry; introduction to organic and biochemistry. (Students may not receive credit for CHEM 116, or 118 and for CHEM 112. (CHEM 111 and 112 cannot be used as pre-requisite courses for organic chemistry) Students anticipating the possibility or likelihood of taking organic chemistry must have credit for CHEM 115 and CHEM 116 or CHEM 117 and CHEM 118)

CHEM 113 Fundamentals of Chemistry (3-3)4 F
(MATH 030 or ACT math score of 16 or higher)
Fundamentals of inorganic, organic, and biological chemistry. Oriented toward the needs of associate degree level, health profession programs.

CHEM 115 Fundamentals of Chemistry (3-3)4 F, S
(CHEM 110 or satisfactory performance on departmental examination. For students who need more than one year of college chemistry and quantitative relationships on which subsequent chemistry courses are built.)
Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses. (Students may not receive credit for CHEM 117 and for CHEM 115.)

CHEM 116 Fundamentals of Chemistry (3-3)4 F, S
(CHEM 115)
Continuation of CHEM 115. (Students may not receive credit for CHEM 118 and for CHEM 116 or CHEM 112) Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

CHEM 117 Principles of Chemistry I (3-6)5
(High School chemistry and satisfactory performance on departmental placement examination or CHEM 110.) Primarily for students specializing in chemistry.
A more advanced treatment of the principles and theories of chemistry than offered in CHEM 115 and CHEM 116. (Students may not receive credit for CHEM 117 and for CHEM 111 or 115.)

CHEM 118 Principles of Chemistry II (3-6)5
(CHEM 117)
Continuation of CHEM 117. (Students may not receive credit for CHEM 118 and for CHEM 112, CHEM 116, or CHEM 215.)

CHEM 215 Introductory Analytical Chemistry (2-6)4 F
(CHEM 116)
Volumetric analysis, gravimetric analysis, solution equilibria, spectrophotometry, separations, electro-mechanical methods of analysis. (Students may not receive credit for CHEM 215 and for CHEM 117 and CHEM 118.)

CHEM 233 Organic Chemistry I (3-0)3 F
(CHEM 116 or CHEM 118; and/or concurrent enrollment CHEM 235)
Basic principles of organic chemistry. Modern structural concepts, the effect of structure on physical and chemical properties, reaction, and their mechanism and application to syntheses. (Students may not receive credit for CHEM 233, CHEM 234, and for CHEM 231.)

CHEM 234 Organic Chemistry II (3-0)3 S
(CHEM 233 and CHEM 235 and/or concurrent enrollment CHEM 236)
A continuation of CHEM 233.

CHEM 235 Organic Chemistry Lab I (0-3)1 F
(CHEM-233 or concurrent enrollment)
Fundamental organic reactions and the preparation of organic compounds.

CHEM 236 Organic Chemistry Lab II (0-3)1 S
(CHEM 233 and CHEM 235 or concurrent enrollment)
A continuation of CHEM 235.

CHEM 310 Analytical Chemistry II (3-0)3 S-Odd years
(CHEM 215 and Physical chemistry.)
Lectures and demonstrations. Fundamentals of instrumental methods applied to chemical analyses: electrochemistry, spectroscopy, mass spectrometry, and chromatography.

CHEM 313 Instrumental Analysis Laboratory I (0-3)1 S-Odd years
(CHEM 310)
Practical application of modern instrumental methods to problems in chemical analysis.

CHEM 341 Physical Chemistry: Brief Course II (3-0)3
(Grade of "C" or better in CHEM 116)(CHEM 215 if CHEM major.)(Math 156, and PHYS 102 or 112.)
Beginning physical chemistry covering the subjects of chemical thermodynamics, chemical dynamics, and the structure of matter. (Students may not receive credit for CHEM 346 and 348 and for CHEM 341)

CHEM 342 Experimental Physical Chemistry I, II(0-3)1
(CHEM 341 or CHEM 346) and CHEM 215 and/or CHEM 231 or CHEM 235)
Laboratory work in physical chemistry designed to accompany CHEM 341

CHEM 346 Physical Chemistry I (3-0)3 S
(CHEM 234, MATH 156 and PHYS 112)
A first course in physical chemistry. Topics include: A study of thermodynamics and chemical equilibria.

CHEM 347 Physical Chemistry Lab I (0-3)1 S
(CHEM 118 or CHEM 346)
Experimentation illustrating the principles of physical chemistry and offering experience with chemical instrumentation.

CHEM 348 Physical Chemistry II (3-0)3 F
(CHEM 346 and Math 251)
Continuation of CHEM 346. Chemical dynamics and the structure of matter. (Students may not receive credit for CHEM 348 and for CHEM 341.)

CHEM 349 Physical Chemistry Lab II (0-3)1 F
(CHEM 346, CHEM 347 and CHEM 348)
Continuation of CHEM 347.

CHEM-420 ADVANCED ANALYTICAL CHEMISTRY (3-0) 3
(CHEM-310)
Principles of analytical procedures and separations at an advanced level compared to CHEM 215 and 310.

CHEM 422 Intermediate Inorganic Chemistry I (3-0)3 S
(Physical Chemistry)
Structure, bonding, and reactivity of compounds of maingroup and transition metal elements. Molecular structure and symmetry, solid state chemistry, ligand Field theory, and coordination chemistry.

CHEM 423 Inorganic Synthesis Laboratory I (0-3)1 S
(CHEM 422)
Application of modern synthetic and spectroscopic. Methods of analysis to the preparation

and characterization of main group, solid-state, transition metal, and organometallic compounds.

CHEM-430 ADVANCED INORGANIC CHEMISTRY (3-0) 3
(CHEM-234 and 322)
Symmetry and group theory as applied to molecular orbital theory, ligand field theory, catalysis and organometallic chemistry, coordination chemistry, bioinorganic chemistry, advanced main group compounds.

CHEM-440 ADVANCED ORGANIC CHEMISTRY (3-0) 3
(CHEM-234)
The study of the relationship between structure of carbon compounds and their reactivity and properties including reaction mechanisms, bonding, resonance, molecular orbital theory, aromaticity, conservation of orbital symmetry, photochemistry, reactive intermediates, and polymerization.

CHEM 451 Biochemistry (3-0)3 S
(CHEM 234 or concurrent)
Protein structure, conformation, and dynamics. Enzymes and their reaction mechanisms. Carbohydrate and fatty acid genesis and metabolism. Biosynthesis of macromolecular precursors. Information storage, transmission, and expression genetics.

CHEM 490 Teaching Practicum 1-4 hr.
(Department consent)
Teaching practice as a tutor or assistant.

CHEM 493 Special Topics I, II 1-6hr.
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

CHEM 494 Seminar 1-3 hr.
(Department consent)
Presentation and discussion of topics of mutual concern to students and faculty.

CHEM 497 Research I, II 1-6 hr.
(Department consent)
Independent research projects.

Civil Engineering (CE)

CE 202 Concrete Canoe/Steel Bridge Design and Construction (1-0)1 S
(Open to all students in Civil Engineering or Civil Engineering Technology)
Students participate in the concrete canoe and/or steel bridge design and construction for competition in the Annual American Society of Civil Engineers (ASCE) Virginias' Conference.

CE 204 Surveying (2-3)3 F
(MATH 126, MATH 128, DRET 120)
The measurement of distances, directions, elevations and areas on the earth's surface; introduction to route surveying; introduction to computer programs for surveying.

CE 312 Construction Materials (2-3)3 S
(MAE 243)

A study of civil engineering materials; metals and alloys, mineral aggregates, cements, concrete and concrete products, bituminous materials, lumber and timber, and the testing of materials.

CE 331 Transportation Engineering (3-0)3 S
(CE 204, MAE 242)
Introduction to integrated transportation systems – vehicle, roadway and human characteristics; traffic engineering studies; intersections and interchanges; highway geometric design; highway pavement design; transportation planning; highway capacity analysis; evaluation of alternatives.

CE 347 Introduction to Environmental Engineering (3-3)4 S
(MAE 331, CHEM 116)
Introduction to physical, chemical, and biological characteristics of waters and wastewaters, and fundamental principles of water and wastewater treatment including hands-on laboratory exercises.

CE 351 Introductory Soil Mechanics (3-3)4 S
(MAE 243, GEOL 312)
Soils: origin, classification, clay, index properties; minerals, stresses in soils; shear strength; permeability; consolidation; bearing capacity; earth pressure; slope stability. Determination of index, strength, deformation permeability and properties of soils.

CE 361 Structural Analysis 1 (4-0)4 F & S
(MAE 243,§MATH 251)
Analysis of forces and deflections in determinate and indeterminate structures; influence lines for beams and trusses; dead, live, and snow loads on structures; and introduction to computer programs for structural analysis.

CE 411 Pavement Design (3-0)3 F
(CE 312, CE 351, CE 331)
Stresses in flexible and rigid pavements; equivalent single wheel load; design for frost penetration; soil classification; strength-density-moisture considerations; bases and sub-bases; soil stabilization; design of flexible airport and highway pavements; design of rigid airport and highway pavements; strengthening existing pavements.

CE 421 Hydraulic Engineering (3-3)4 F
(MAE 331)
Fundamental principles of incompressible fluid dynamics, hydrostatics, friction losses in pipes and open channels and design of water supply, stormwater and sanitary sewer systems and their components including pipes, pumps, and open channels.

CE 422 Advanced Hydraulic Engineering (3-0)3 S
(CE 421)
Advanced topics in open channel hydraulics including energy and momentum principles, channel controls and transitions, flow resistance, design of open channels, gradually varied flow in natural and artificial channels, hydraulic structures, , introduction to unsteady open channel flow, and computer applications using public-domain software such as HEC-RAS and HY8.

CE 425 Engineering Hydrology (3-0)3 F
(MAE 331)
Scientific basis of the hydrologic cycle and its engineering implications; rainfall-runoff processes, hydrographs, flood routing, and statistical methods.

CE 431 Highway Engineering (3-0)3 S
(CE 204, CE 331)
Traffic volume, speed, accident analysis, parking lot design, sight distances; horizontal and vertical curves; cross section elements; deceleration lanes; medians; design of interchanges and intersections; highway capacity; drainage; level of service; tort liability; pavement introduction; highway design project.

CE 432 Traffic Engineering (3-0)3 F
(CE 331)
Traffic engineering concepts and parameters, traffic data collection and analysis methods, theory and design of traffic control systems, traffic safety and operation analysis.

CE 444 Advanced Sanitary Engineering (3-0)3 F
(CE 347)
Contemporary practices in sewage disposal and advanced waste treatment. Design of sedimentation units, biological treatment units, disinfection and advanced waste treatment units.

CE 446 Solid Waste Management (3-0)3 S
(CHEM 116, CE 351)
History of solid waste management. Laws and regulations pertaining to solid waste management. Sources, composition, and properties and municipal solid waste. Handling, collection, separation, transformation, transport, and disposal of solid waste including landfill design. Incineration, landfill closure, and recycling.

CE 451 Foundation Engineering (3-0)3 F
(CE 351, CE 462)
Subsurface exploration; bearing capacity; settlement analysis; shallow foundations; design of square and rectangular footings; design of combined footings; analysis of gravity and cantilever retaining walls; introduction to deep foundations; foundation design project.

CE 452 Groundwater & Seepage (3-0)3 S
(CE 351)
Fundamentals of groundwater flow; permeability; seepage principles; flownet interpretation; analytical and numerical solutions of confined and unconfined flows; filter design; geofabrics; subsurface drainage; groundwater contamination; disposal systems.

CE 453 Earthwork Design (3-0)3 S
(CE 351)

Use of soil mechanics principles in the analysis, design and construction of earth structures. Principles of compaction and compaction control; an introduction to slope stability analysis and landslides; earth reinforcement systems, and ground improvement techniques.

CE 461 Structural Analysis 2 (2, 3)3 F-Even
(CE 361, MATH 261, §CE 462 or §CE 463)
Classical and analytical techniques for solving complex structural systems; force methods of analyzing 2 and 3 dimensional trusses and frames; shear deformation, torsion, and unsymmetrical bending of beams and frames; modeling of structural systems using commercial computer programs; beams on an elastic foundation; springs; lateral load analysis of buildings, bracing systems; and diaphragm behavior.

CE 462 Reinforced Concrete Design (2-3)3 S
(§CE 361)
Theory of reinforced concrete; design using ACI 318 ultimate strength methods; design of beams, one-way slabs, columns, retaining walls, square and rectangular footings using ultimate strength design; deflection of reinforced concrete beams; and development lengths and splices.

CE 463 Steel Design (2-3)3 F
(CE 361)
Design of tension members, columns, beams, beam-columns, and connections using current AISC specifications. Introduction to the design of steel structures.

CE 464 Timber Design (2-3)3 F-Odd
(CE 361)
Study of basic wood properties and design considerations; determination of structural loads on buildings using ASCE 7; seismic design considerations; design and behavior of wood connectors, fasteners, beams, columns, and beam-columns; introduction to plywood and glue-laminated members; and the analysis and design of structural diaphragms and shear walls.

CE 479 Integrated Civil Engineering Design (3-0)3 F & S
(Senior standing)
Principles of management, contracts and specifications, cost analysis, study of critical path method as applied to the construction industry; completion of a comprehensive civil engineering project where several specialties of the field are involved.

CE 493 Special Topics (variable credit)1-3 As needed
Topics to be selected depending on the interest of the student and faculty.

CE 497 Research (variable credit)1-3 As needed
(Junior standing with department chair and instructor permissions)
Designed for the undergraduate student who wishes to engage in research. This course applies basic engineering principles, analytical procedures and design methodologies to special problems in depth by each student using library, computer, or laboratory facilities. Comprehensive written report and oral defense are required. Topic(s) and credit for each semester are announced at the time of course enrollment.

Communication Studies (COMM)

COMM 100 Principles of Human Communication (1-0)1 S
Introduction to the human communication process with emphasis on the principles, variables, and social contexts of communication.

COMM 102 Human Communication in the Interpersonal Context (2-0)2 S
Introduction to interpersonal communication with emphasis upon application of one-to-one communication in a variety of social contexts.

COMM 471 Oral Interpretation (3-0)3
(SPA 270 or department consent)
Oral performance, interpretation of prose, poetry, and drama for aiding prospective teachers in oral communication and literature.

Community Health Promotion (CHPR)

CHPR 172 First Aid and Emergency Care (2-0)2 F
Emergency aid for the sick and injured. Emergency services aimed at reducing the potential of permanent disability or threats to life, as well as pain, damage, or suffering of a less serious nature.

Computer Engineering (CPE)

CPE 271 Introduction to Digital Logic Design (3-0)3 S
(§EE 221 and §EE 222)
Introduction to the design of digital circuit systems. Topics include number systems, coding, Boolean and switching algebra, logic design, minimization of logic, sequential logic and design of digital subsystems. Laboratory experiments with digital circuits including number systems, design and application of modern digital circuitry for combinational and sequential circuits.

CPE 272 Digital Logic Laboratory (0-3)1 S
(§CPE 271)
Experiments with digital electronic circuits including number systems, design and application of modern digital circuitry for both combinational and sequential logic circuits.

CPE 310 Microprocessor Systems (3-0)3 F
(CPE 271)
Introduction to microcomputer systems with emphasis on the use of a microcontroller as a digital design element. Topics include basic computer architecture, binary number systems and codes, binary arithmetic and logic operations, parallel and serial I/O, A/D conversion, timers and counters, and interrupts. Student required to develop assembly language and C-language software for interfacing to various peripherals. Microcontroller used to present case studies on several data collection and control examples.

CPE 311 Microprocessor Systems Laboratory (0-3)1 F
(§CPE 310)
Machine language, assembly language and hardware and software interfacing. (This includes editing, linking, and debugging.) Memory, I/O and basic techniques of microprocessor interfacing.

CPE 421 Embedded Systems (3-3)4 S
(CPE 420)
Advanced family of processors (16, 32, 64 bit) studied in depth. Design and implementation of small embedded controllers. Register level programming with assembler

language and C programs that reside and execute on the microcomputer. Use peripherals including serial I/O, parallel I/O, timers and interrupts. Design of basic interface circuitry for the microcomputer. Design of small embedded systems around microcontroller board.

CPE 442 Introduction to Digital Computer Architecture (3-0)3 F
(§CPE 310 and §CPE 311)
Control, data, and command driven computer architecture. Parallel processing, pipelining, and vector processing. Structures and algorithms for array processors, systolic architectures. Design of architectures.

CPE 450 Introduction to Microelectronics Circuits (3-0)3
(EE 355)
VLSI (Very Large Scale Integrated) circuit design, including layout, simulation and performance optimization of basic digital logic functions and combinations of such basic functions into more complex digital system functions. CAD tools are used for projects.

CPE 455 VHDL Design (3-0)3
(CPE 271)
Design of digital systems using Verilog/VHDL with Xilinx software and hardware (FPGA board). Students design digital systems at a high level, express the algorithms in Verilog/VHDL and use the Xilinx platform for simulation and debugging.

CPE 462 Wireless Networking (3-0)3
(EE 329).
Design and analysis of modern wireless data networks. Digital modulation techniques, wireless channel models, design of cellular networks, spread spectrum, carrier sense multiple access, ad-hoc networks routing, error control coding, automatic request strategies.

CPE 493 A-Z. Special Topics (variable 1-6 Credit Hours)
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

Computer Science (CS)

CS 101 Introduction to Computer Applications (1-0)4
Introduction to spreadsheets and databases for problem solving in disciplines such as math, science, engineering, business, social sciences, behavioral sciences, and environment: using computer applications to create technical reports and presentations.

CS 112 Computer Science for Engineers (3-0)3
(§MATH 126A or §MATH 128)
An introductory study of a high level programming language, including elementary programming techniques with an emphasis on structured programming and engineering applications. Laboratory use of computers is required.

CS 115 Discrete Structures (3-0)3
(MATH 150)
An introduction to discrete mathematics as it is used in computer science. Topics include functions, relations, sets, propositional and predicate logic, simple circuit logic, proof techniques, elementary combinatorics, and discrete probability.

CS 121 Computer Science 1 (3-2)4
(§MATH 126 or MATH 123)
Problem solving methods and algorithm development; programming in high level language-designing, coding, debugging, and documenting programs using techniques of good programming style.

CS 122 Computer Science 2 (3-2)4
(CS 121 with a grade of "C" or better)
Software development with abstract data types; elementary data structures including lists, stacks, and queues; development of algorithms; classical sorting and search techniques; design methodology; file processing; recursion; and object-oriented design and development.

CS 201 Data Structures (3-0)3
(CS 122 with and a grade of "C" or better)
Introduction to data structures. The topics include search and sort techniques, trees, heaps, hash table and graph algorithms. Selected examples will be implemented in a high level language.

CS 220 Discrete Mathematics (3-0)3
(CS 122 and MATH 155)
Mathematical concepts used in computer science such as sets, relations, functions, counting principles, graphs, trees, and automata; introduction to basic graph algorithms and applications.

CS 221 Analysis of Algorithms (3-0)3
(CS 201 and CS 220)
Introduction to algorithm design and analysis. Growth rate of functions and asymptotic notation. Divide-and-conquer algorithms and recurrences; searching and sorting; graph algorithms including graph searching, minimum spanning trees, and shortest paths.

CS 222 Introduction Software Engineering (3-0)3
(CS 122 with a grade of "C" or better)
Principles of software engineering such as modifiability, efficiency, reliability, and understandability. Techniques include information hiding, data abstraction and modularity. Laboratory work is required.

CS 225 C# (3-0)3
(CS 122 with a grade of "C" or better)
Introduction to Microsoft C#. Net programming language. The students will design and implement projects using an object-oriented approach. This will include GU1 for layout, writing classes in C#, and an introduction to data connectivity.

CS 231 Introduction to Computer Organization (3-0)3
(CS 122 with a grade of "C" or better)
Components of a computer system; number systems, arithmetic operators, and codes; logic design principles and digital devices; micro-operations and instruction sequencing; central processing unit - control unit, registers, ALU; I/O processing; interrupts; memory; microprogramming; pipelined and parallel computers.

CS 263 Introduction to Networking (3-0)3
(CS 122)
Students will be introduced to the study of networking. The course will focus on the TCP/IP layered model of networking. The topics included will be IP routing, TCP, UDP delivery of packets to client applications. There will be a study of server applications using various protocols for different types of services. The students will have an opportunity to implement these techniques in a Unix environment.

CS 264 Database Management (3-0)3
(CS 122 with a grade of "C" or better)
A study of fundamentals of database models. The primary emphasis will be the relational database model. Database query language will be examined. The students will receive hands-on experience with a relational database using the query language.

CS 265 C Programming (2-0)2
(CS 122 with a grade of "C" or better)
Functions, parameter passing, dynamic memory allocation, pointers, and elementary data structures in C; software design and implementation with emphasis on creating and modifying large programs in procedural paradigm.

CS 266 e-Commerce (3-0)3
(CS 121 and CS 225)
This course will teach students how to write the software necessary to implement Internet e-Commerce. The student who completes this class could be employed by a small business to create the web program to sell their product over the web. This application could include, but is not limited to, a customer purchasing products from the internet store; the small business owner updating their catalog; the retrieval of orders from the internet store for shipment to the customer, and the billing of those orders. The student will be exposed to ASP and PHP technologies to implement Internet e-Commerce.

CS 270 Linux (3-0)3
(CS 121)
An introduction to application development on the Linux/Unix platform, including shell programming; the Linux file system; packaging software for distribution; process and thread creation; process and thread synchronization with semaphores and mutexes; inter-process communication with pipes; programming sockets; and development of X windows applications using tools such as Qt and QtDesigner. Programming experience with C/C++ is assumed.

CS 293 Special Topics 1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

CS 310 Principles of Programming Languages (3-0)3
(CS 201)
Theoretical and practical aspects of languages including internal representations, run-time environments, run-time storage management; historical, current, special-purpose and experimental languages; finite-state automata, regular expressions and context-free grammars, language translation, semantics and paradigms.

CS 322 System Analysis and Design Methodology (3-0)3
(CS 222)
Introduction to systems analysis techniques. Analyzing the requirements and methods employed from the initial study through implementation; physical design of the system; evaluation of optimum techniques for maximum system independence.

CS 324 Database Management (3-0)3
(CS 122 with a grade of "C" or better)
A study of fundamentals of database models. The primary emphasis will be the relational database model. Data base query languages will be examined. The students will receive hands-on experience with a relational data base using the query language SQL.

CS 350 Computer System Concepts (3-0)3
(CS 265 and CS 231)
System software organization; operating system concepts including processes, threads, memory management, and the user interface; elementary network concepts.

CS 365 Computer Languages (1-0)1
(CS 122 with a grade of "C" or better)
An accelerated study of a programming language (such as C/C++, C#, JAVA, Visual Basic, Perl, ASP, HTML, Delphi, Ada, etc.) for students who have met the core curriculum courses in computer science.

CS 370 Microcontrollers (1-0)1
(CS 112 or CS 265)
An introduction to microcontrollers. The use of development board and language, simple I/O, motor control (AC, DC and servos), some sensors, and microcontroller to PC communications will be covered. A project will be required of each student.

CS 410 Compiler Construction (3-0)3
(CS 310)
Theory and practice of the construction of programming language translators; scanning and parsing techniques, semantic processing, runtime storage organization, and code generation; design and implementation of interpreter or compiler by students.

CS 450 Operating Systems Structures (3-0)3
(CS 350)
Support of computer components; device management and interrupts, process scheduling, file management, complete OS structure, OS development and debugging, configuration management, and performance testing.

CS 454 Cryptology (3-0)3
(MATH 441)
This course is designed to give students a basic introduction, the foundation, and developments in the field of cryptology. Mono-alphabetic substitutions, poly-alphabetic substitutions stream ciphers, block ciphers, public key cryptology, and quantum ciphers will be reviewed along with number theory and probability necessary for solving encryptions.

CS-456 DIGITAL IMAGE PROCESSING (3-0)3
(CS 201 and MATH 156)
This course covers techniques for image acquisition, transformation, enhancement, restoration, compression, segmentation and recognition. A brief introduction to advanced topics such as motion detection, optical flow will also be included.

CS 461 Senior Project (3-0)3
(CS 322, CS 324, and Department Consent)
The design, development and implementation of a project related to some area of computer science (hardware or software). Requirements include written reports and oral presentations. The study of computing ethics, and environmental issues will be covered as student presentations.

CS 465 Introduction to Computer Security 3 Hr.
(CS 321 and Department Consent)
An overview of threats to computer security; technologies for security assurance and approaches to security solutions. Security vulnerabilities; encryption; access control; trusted systems; security administration.

CS 470 Introduction to Computer Graphics (3-0)3
(CS 201)
Overview of 3D graphics hardware and gaming consoles; focus on developing 3D graphics software; fundamental algorithms for real-time 3D graphics with focus on game engine component development; introduction to three-dimensional game engine development.

CS 472 Artificial Intelligence (3-0)3
(CS 222)
Survey of AI techniques, heuristic search, game playing, knowledge representation schemes: logic, semantic net, frames, rule-based; natural language processing, advanced AI techniques/systems: planning, blackboard architecture, neural net model; AI implementation.

CS 479 Advanced CS Math (3-0)3
(§MATH 441)
Topics include applied numerical methods, statistical computing techniques, and data smoothing and filtering. Emphasis will be placed on design and implementation. Students will utilize software packages such as SAS, MatLab, or MathCad.

CS 480 Senior Design Seminar (2-0)2
(CS 222 and Department Consent)
Penultimate semester. Group senior design projects with individual design assignments appropriate to student's discipline. Complete system-level designs of the subsequent semester's project presented in written proposals and oral presentations.

CS 481 Senior Project (3-0)3
(CS 480)
Continuation of CS 480. Detailed design and implementation of the system including choice of components, algorithm development, interfacing, troubleshooting, working in groups, and project management. Also covers professional topics, including ethics, liability, safety, socio-legal issues, risks and employment agreements.

CS 491 Professional Field Experience 1-18
(Department consent)
Prearranged experiential learning program to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

CS 493 A-Z Special Topics 1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

Computerized Drafting and Design Engineering Technology (DRET)

DRET 120 Drafting I (1-3)2
Fundamentals of drafting through the use of sketching and computer graphics as applied to orthographic views, sectional views, isometric views, and threads and fasteners. Also the student will be introduced to computer graphics early in the program and will be required to produce much of their work using CAD.

DRET 121 Drafting 2 (1-)2
(DRET 120)
Teaches basic mechanical drafting techniques covering auxiliary views, working drawings, and tolerancing; basic descriptive geometry; and mapping. Also covers computer graphics, taking up where Drafting I leaves off.

DRET 201 Electrical and Electronic Drafting (1-3)2
(DRET 120)
Introduction to the current practices and developments in both electrical and electronic drafting. Methods used to produce technical drawings required by industry will be explored using AutoCAD. Students will learn block diagrams, control drawings, logic diagrams, schematic diagrams, printed circuit board drawings, integrated circuit drawings, ladder diagrams, and interconnecting diagrams. Current techniques to produce electrical design and working drawings will also be studied. Interaction and coordination of projects with ELET courses is encouraged with permission of instructor.

DRET 202 Architectural Drafting (2-2)3 F
(DRET 121 or department consent)
Functional planning and design of residences and allied structures; experiences in designing, drawing, calculation costs, and preparing specifications and presentation drawings.

DRET 204 Structural Drafting (2-2)3 S
(DRET 121, CIET 115 or department consent)
Techniques in preparing design and working drawings for various structures in wood, concrete, and steel. Drawings will be produced using AutoCAD. Neatness and ability to make systematic computations emphasized. Interaction and coordination of projects with CIET courses is encouraged with permission of instructor.

DRET 212 Piping and Sheet Metal Drafting (2-2)3 F
(DRET 121)
Design, layout and graphical treatment of piping systems. Emphasis on standard symbols and nomenclature and schematic, pictorial, multiview representation. Design and layout of patterns for fabrication from sheet materials. Emphasis on theory or developments, sheet materials, forming processes, and use of standard forming tables.

DRET-214 COMPUTER GRAPHICS (2-2) 3 F/S
(DRET-120, ßDRET-121 or permission of instructor)
Teaches use of the two dimensional graphics capability of the microcomputer, using the AutoCAD industrial software package. Also covers printer and plotter capabilities and provides an introduction to 3D computer graphics.

DRET-215 ADVANCED COMPUTER-AIDED DRAFTING (2-2) 3 F
(DRET-214)
Course continues the development of skills in the use of computer graphics. It utilizes all skills learned in DRET- 214 and further develops them by exposing students to more powerful software and equipment. Concentrates on AutoCAD's 3D and solid modeling applications to include wire frame modeling, surface modeling, region modeling, primitives, and Boolean operations.

DRET 216 Engineering Design Graphics (2-2)3 S
(DRET 121, MEET 121, MATH 113, DRET 202, and MEET 225 or department consent)
The design process, problem identification, refinement and analysis using both computer (CAD) and mechanical drafting. Implementation skills to include multiview sketching and drawing, auxiliary views, working and pictorial drawings, sections, dimensioning, tolerances; screws and fasteners, gears and cams. Design projects will be assigned throughout and oral presentation will be required.

DRET-284 MICROSTATION (2-3) 3 F
(DRET-214 or permission of instructor)
This course will introduce the student to the basic operation of MicroStation CAD software. Some comparisons to AutoCAD will be made. Included in this course are loading existing design files; new design file creation and setup; construction and modification within design files; cell library concepts; dimensioning; and plotting.

DRET-285 LAND & TOPOGRAPHIC DESIGN (2-3) 3 S
(DRET-214)
Students are introduced to various topographic-related drawings and design principles utilizing specialized design software intended for this purpose. Emphasis is placed on conventions and practices that are used by CAD professionals working in the civil, surveying, and mapping fields.

DRET-286 PARAMETRIC MODELING (2-3) 3 F
(DRET-214)
The creation of three-dimensional parametric models are used in the design process to develop solutions to design problems. Specialized design software is used to create designs and perform various analytical functions on them. Creation of engineering drawings from parametric models; assembly of components to make adaptive assemblies; and generation of presentation files for technical illustrations are studied.

DRET-287 ILLUSTRATIONS FOR PRESENTATIONS (2-3) 3 F
(DRET-214)
Emphasis is place on the creation of drawings and design solutions to be used on a presentation level. Design software is used to not only create camera-ready presentation drawings, but also explore the use of animation technology to better present design solutions.

DRET-299 DRAFTING AND DESIGN PROJECTS (1-3 credits)
(Consent of the department)
Select studies in Computerized Drafting and Design Engineering Technology.

DRET 314 Computer Graphics (2-2)3
(DRET 120, DRET 121 or department consent) (For non-majors)
Teaches use of the two dimensional graphics capability of the microcomputer, using the AutoCAD industrial software package. Also covers printer and plotter capabilities and provides an introduction to 3D computer graphics.

DRET 315 Advanced Computer-Aided Drafting (2-2)3 F
(DRET 214) (For non-drafting majors)
Course continues the development of skills in the use of computer graphics. It utilizes all skills learned in DRET 314 and further develops them by exposing students to more powerful software and equipment. Concentrates on AutoCAD's 3D and solid modeling applications to include wire frame modeling, surface modeling, region modeling, primitives, and Boolean operations.

Cooperative Education (COOP)

COOP 101 Humanities Internship 1 (0)
Student enrolls for course to designate a supervised one or two term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 102 Humanities Internship 2 (0)
Student enrolls for course to designate a supervised one or two term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 103 Engineering Internship 1 (0)
Student enrolls for course to designate a supervised one or two term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 104 Engineering Internship 2 (0)
Student enrolls for course to designate a supervised one or two term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 105 Engineering Technology Internship 1 (0)
Student enrolls for course to designate a supervised one or two term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 106 Engineering Technology Internship 2 (0)
Student enrolls for course to designate a supervised one or two term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 205 Co-Op Work Experience 1 (0)
Student enrolls for course to designate a supervised three to five term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 206 Co-Op Work Experience 2 (0)
Student enrolls for course to designate a supervised three to five term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 207 Co-Op Work Experience 3 (0)

Student enrolls for course to designate a supervised three to five term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 208 Co-Op Work Experience 4 (0)
Student enrolls for course to designate a supervised three to five term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

COOP 209 Co-Op Work Experience 5 (0)
Student enrolls for course to designate a supervised three to five term commitment to an off-campus work assignment in business, industry, governmental, or a non-profit organization.

Criminal Justice (CMJS)

CMJS 120 Survey of Criminal Justice (3-0)3 F
A survey course designed to familiarize students with the functions, structure, and organization of the agencies that are responsible for the administration of justice in America. Specifically, the course deals with the police and issues related to law enforcement, prosecution of offenders, the judicial system, and corrections.

CMJS 133 Juvenile Justice (3-0)3 S
The history, philosophy and process of juvenile court system studied. Students are familiarized with the juvenile facilities utilized by the State of West Virginia. The differences between adult and juvenile offenders are emphasized along with the differences in the role of correctional officers and staff in these locations. Current court cases and juvenile laws are examined in depth.

CMJS 134 Substance Abuse Policy (3-0)3 F-Odd
The fundamentals of mood-altering chemicals and theories, symptomatology, and treatment of their abuse. Addresses the current US policy regarding substance abuse prevention, treatment, criminality, and education.

CMJS 240 Correctional Counseling (3-0)3 S-Odd
A survey of contemporary counseling interventions for juvenile and adult offenders with an emphasis on cognitive and behavior modifications strategies. Other counseling models will also be examined.

CMJS 245 Criminal Law (3-0)3 F
This course focuses on that aspect of the American legal and judicial system associated with the violation of law and the process that is utilized to determine a verdict. Topics include the definitions of criminal offenses, rights of the accused, pre-trial procedures, the criminal trial and the appeal process.

CMJS 250 Community Based Corrections (3-0)3 F-Even
The history, philosophy, types and current trends in community based corrections is studied and field trips to local facilities are utilized. The role of the correctional officer in this setting is examined. The function and operation of the parole and pardon boards as well as the statutory limitations and authorization, and community relations.

CMJS 310 Law Enforcement Administration (3-0)3 S
This course introduces the history of law enforcement in the United States, the roles of law enforcement officers, the purpose of policing, police conduct, police administration, and community relations.

CMJS 320 Courts and Judicial Systems (3-0)3 S
This course focuses on the structure and philosophy of the court system with special emphasis on court procedures, constitutional guarantees, the trial process, the role of judges, prosecutors, defense attorneys, and juries.

CMJS 410 Criminal Investigations (3-0)3 S-Odd
This course focuses on that aspect of the American legal and judicial system associated with the investigative processes as conducted by law enforcement and forensic science. Included will be an examination of the role of crime scene investigation, witness interviewing, and the investigators relationship with the prosecution.

CMJS 475 Seminar in Criminal Justice-Capstone (3-0)3
This capstone course integrates the knowledge and skills the students have acquired during all of their major course work. All students must be Criminal Justice Seniors in good standing and have permission of the instructor. Instruction will be in the classroom with two field trips outside the classroom setting.

Economics (ECON)

ECON 201 Principles of Microeconomics (3-0)3
Introductory microeconomics analysis. Competitive behavior of firms, price determination, efficiency in production and equity in distribution.

ECON 202 Principles of Macroeconomics (3-0)3
Introductory macroeconomics analysis. Aggregate demand and supply, saving, investment, the level of employment and national income determination, monetary and fiscal policy.

ECON 225 Elementary Business and Economics Statistics (3-0)3 S
(Sophomore standing and MATH 123 or MATH 126 with grade of "C" or better)
Basic concepts of statistical models, distributions, probability, random variables, tests of hypotheses, confidence intervals, regression and correlation with emphasis on business and economic examples.

ECON 240 Introduction to Labor Unions (3-0)3 S
Structure, function and activities of labor unions and labor organizations; theories of labor organization and comparative labor movements; survey of labor and industrial relations.

ECON 301 Intermediate Micro-Economic Theory (3-0)3 F-
(ECON 201)
Consumer choice and demand; price and output determination of the firm, and resource allocation, under different market structures; welfare economics, externalities, public goods, and market failure; general equilibrium; other topics.

ECON 306 History of Economic Thought (3-0)3 F-Odd
(ECON 201 & ECON 202)
Economic ideas in perspective of historic development.

ECON 331 Money and Banking (3-0)3 S
(ECON 201 & ECON 202)
The U.S. monetary and banking system and its functional relationship to the economic system; monetary theory and policy.

ECON 337 Industrial Relations (3-0)3 F-Odd
(ECON 202 or department consent)
Economic and political aspects of labor-management relationships; workers' problems; union history, organization and policy; collection bargaining and settlement of labor disputes; labor legislation.

ECON 345 Labor Law (3-0)3 F-Odd
Evolution of labor legislation in the U.S.; Sherman Act, Clayton Act, NIRA; Wagner Act, Taft-Hartley Act**;** Landrum-Griffin Act. Jurisdictional disputes; freedom of speech; solicitation of membership; voting rights of strikers; picketing; secondary boycotts; strike regulations; labor and anti-trust regulations; growing role of government in collective bargaining. Study and use of professional and reference materials.

ECON 346 Interpreting Labor Agreements (3-0)3 S-Odd
(ECON 345 or department consent)
This course will focus on the language, design, and structure of contracts; the function of grievance procedure; and the understanding of contract provisions. Court and arbitration decisions will be used as case studies. Study and use of professional and reference materials.

ECON 348 Arbitration Practices and Procedures (3-0)3 S-Even
(ECON 345 or department consent)
Orientation toward practice and procedure in labor arbitration, including preparation and presentation of a labor arbitration case (role of representatives and arbitrator, evidence, remedies, opening statements and closing arguments, transcripts, post-hearing briefs, study and use of professional and reference materials): extensive reference to and use of the National Bituminous Coal Wage Agreement(s).

ECON 350 Principles of Risk and Insurance (3-0)3
Concepts of insurance and risk administration.

ECON 360 Employee Relations Law (3-0)3 F-Even
Government regulation of personnel; equal employment opportunity; workers compensation; Occupational Safety and Health Act; unemployment compensation; Employee Retirement Income Security Act.

ECON 370 Wage Theory and Administration (3-0)3 F-Even
(ECON 201, ECON 202, ECON 350 or department consent)
Development of wage theories; wage/salary determination processes; wages structures; impact of wage differentials; wage administration; meriting systems; implementation and effect of government regulations.

ECON 401 Managerial Economics (3-0)3
Cost and revenue analysis; compound interest model for profitability analysis planning working model for profitability analysis; planning working capital needs; replacement policy; inventories; working capital needs; replacement policy; inventories; linear programming; estimating demand, cost and pricing.

ECON 430 Collective Bargaining (3-0)3 S-Even
(ECON 201 & ECON 202 or department consent)
Union structure, administration and operation; basic theories of collective bargaining; the bargaining process, administration of agreements; wage and fringe issues in collective bargaining; institutional and administrative issues; case studies.

ECON 441 Public Economics (3-0)3 F
(ECON 202)
Economic roles of the public sector. Particular attention to market failure, redistributing income, the financing of public sector activities, relationships between federal, state, and local governments, and public choice.

ECON 445 Government and Business (3-0)3 F-Odd
(ECON 202)
Examination of market structure, conduct, and performance. Analysis of market regulation including antitrust laws and regulation of monopolies.

ECON 449 Global Economic Issues (3-0)3 F-Odd
(ECON 201 & ECON 202 or department consent)
Analysis of the nature and problems of less developed economics and various strategies for stimulating economic development; theory of international trade, the balance of payments, international capital flows, exchange rates, and commercial policies affecting trade relations; analysis of current global economic issues.

ECON 481 American Economic History (3-0)3 F-Even
(ECON 202)
Central issues in the development of the American economy.

ECON 493 Special Topics (1-6-0)1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

ECON 495 Independent Study 1-6
(Department consent)
Faculty supervised study of topics not available through regular course offerings.

Education (EDUC)

EDUC 100 Education Colloquium (1-0)1 F
Components of and requirements for the teacher preparation program, including specializations, professional organizations, requirements for admission to the major, avenues to program completion, and requirements for work with children or youth.

EDUC 200 Professional Inquiry in Education (3-0)3 S
(EDUC 100, ENGL 101 & ENGL 102)
An examination of students preconceptions about education and their socialization process relative to the following; aims and purposes of public education, students as learners, curriculum, instruction.

EDUC 201 Psychology of Development (3-0)3
Hereditary and environmental factors influencing physical, mental, moral and emotional development of the individual from conception through adolescence. Special emphasis on

relating the middle and late childhood, and adolescence development to the Appalachian educational setting.

EDUC 300 School and Society (3-0)3
American school in its cultural context. Educational aims, organization, trends, historical traditions, financial aims, legal development and contemporary issues.

EDUC 301 Learning in Educational Settings 1 (3-0)3 F
(EDUC 200, PSYC 101 & one Human Development course)
Examination and utilization of behavioral and cognitive learning models; consideration of learner characteristics; and other factors affecting student learning.

EDUC 305 Psychology of Learning (3-0)3
Basic learning processed and application to instruction, includes design of instruction consistent with principles of learning.

EDUC 311 Practicum 1/Technology App. 1 Hr F
(Admission to the major, grade of "C" or better in EDUC 200 & EDUC 301)
Application of models and paradigms of learning in content area through tutoring of individuals and small groups in an assigned public school site.

EDUC 312 Practicum 2/Technology App. 1 Hr S
(Admission to the major, grade of "C" or better in EDUC 301 & EDUC 311)
Application of paradigms of learning in content area through tutoring of individuals and small groups in an assigned public school site.

Electrical Engineering (EE)

EE 200 Software Tools (1-3)2
(§EE 221)
Introduction to the principal software tools used by electrical and computer engineers, including PSpice MATLAB, and Simulink. Students will solve engineering and mathematical problems using simulation tools and report their results

EE 221 Introduction to Electrical Engineering (3-0)3
("C" or better in MATH 156)
The definition of current, voltage, power, energy, resistance, capacitance, and inductance. The steady-state analysis of DC and AC circuits using the basic laws of circuits analysis: Ohm's Law, Kirchhoff's Laws, voltage divider, current diver, superposition, source transformation, Thevenin and Norton equivalent circuits, nodal analysis, mesh analysis, and maximum power transfer. Operations of capacitors and inductors. The definition of average and RMS values will be covered, along with the basic power equations for DC and steady state sinusoidal signals.

EE 222 Introduction to Electrical Engineering Laboratory (0-3)1
(§EE 221)
Electrical laboratory practice and procedures. DC and AC circuits labs, demonstrating the basic laws of circuit analysis, electrical measurement instrumentation, circuit analysis software, analysis of experimental data by means of linear regression, and electrical calculations.

EE 223 Electrical Circuits (3-0)3

(§MATH 261; "C" or better in EE 221 and EE 222)
Transient response of first and second order circuits. Balance three phase circuits. Mutual inductance, transformers, complex frequency, network frequency response resonance, and Bode plots for magnitude and phase, active and passive filters and two-port networks. Software tools: PSpice and MATLAB

EE 224 Electrical Circuits Laboratory (0-3)1
(§EE 223)
Design and experimental exercises in circuits. Power measurements, transient circuits, steady state AC circuits, frequency response of networks and active and passive filters. Use of PSpice and MATLAB simulation for comparison and verification.

EE 311 Junior Instrumentation Lab (0-3)1 S
(EE 221 and EE 222)
The goal of this course is to learn fundamental concepts of electrical engineering that apply to an industrial environment and how to design industrial data collection and control systems using off-the-shelf devices. Some specific topics covered are the fundamentals of programmable logic controllers (PLCs), including basic ladder diagrams, PLC components and operation, discrete and analog I/O, timers and counters, special function blocks, communications, and application examples; measurement and instrumentation principles including standards, transducers, actuators, interference and noise. The laboratory exercises will explore the development and design of automation and industrial-type systems.

EE 327 Signals and Systems 1 (3-0)3
("C" or better in both MATH 261 and EE 223)
Classification of signal and system types. The study of linear differential and difference equations with zero state response and zero input response. Discrete time and continuous time convolution. The Z-transform and sampling. Laplace transforms and the concept of the transfer function. Applications to circuits. Frequency response and Bode plots.

EE 329 Signals and Systems 2 (3-0)3 S
(EE 327)
Fourier Series and Fourier Transforms; applications to AM and FM modulation techniques; Nyquist sampling theorem; power spectral density, discrete Fourier transforms; random processes, Gaussian noise, and noise through systems.

EE 335 Electromechanical Energy Conversion and Systems (3-0)3 S
(EE 223 and EE 224, §345)
Three-phase power, power factor measurement by two wattmeters. Magnetic circuits. Iron losses, DC machine construction and types. Generator and motor performance analysis, voltage and speed control applications. Transformer network models, regulation and efficiency. Three-phase induction motors, performance analysis, starting, speed control, circuits and applications. Synchronous alternator analysis regulation, infinite bus active and reactive power control and applications Ratings and general design considerations of electric machinery.

EE 336 Electromechanical Energy Conversion and Systems Lab (0-3)1 S
(§EE 335)
Transformers, DC motor and generator performance and characteristics, synchronous machine performance and characteristics.

EE 345 Engineering Electromagnetics (3-0)3

(EE 223, MATH 251 and PHYS 112)
Coulomb's Law, Gauss's Law, Biot-Savart Law, Ampere's Circuital Law, inductance, magnetic energy, magnetic force, time-varying fields, Faraday's Law, Lenz's Law; transmission lines; plane waves; reflection and refraction.

EE 355 Analog Electronics (3-0)3 F
(EE 221 and 222)
Semiconductors, p-n junction diodes, theory and application. Bipolar junction transistors, operation biasing and BJT as an amplifier. JFET's and MOSFET's theory operation and applications. Small-signal low-frequency analysis and design.

EE 356 Analog Electronics Laboratory (0-3) 1 F
(§EE 355)
Design, fabrication, and measurement of analog electronic circuits. Study of biasing, stability, and frequency response.

EE 400 Community Service (0-0)0
All BSEE and BSCpE students must complete 40 hours of community service. The successful BSEE and BSCpE students are expected to complete and evaluate service as a citizen of the local community.

EE 405 Protective Relaying (3-0)3 F
(§EE 436)
General philosophy of protective relaying-relay systems, selection of circuit breaks, classification of relays, backup protection. Protection basics, relay coordination, CT/VT selection, relay characteristics, amplitude and phase comparators, basic design concepts. Differential, directional, over-current, impedance, admittance, reactance relays, characteristics and applications. Burden calculations, protective relaying schemes for generators, transformers, busses, and transmission lines. Relay coordination for radial distribution systems.

EE 411 Fundamentals of Control Systems (3-0)3 F
(EE 327)
Theory common to all feedback control systems. Mathematical models for control system components. Transform and time domain methods for linear control systems, system stability, root locus, Bode and Nyquist methods. Design specification in the time and frequency domains. Compensation design in the time and frequency domains. Use of MATLAB/Simulink

EE 412 Automatic Control Lab (0-3)1 F
(§EE 411)
The lab is equipped with computer-aided control design and servo mechanisms and provides students with the opportunity to experiment, verify, and reinforce the fundamentals of automatic controls for analysis and design. Use of MATLAB/Simulink

EE 413 Introduction to Digital Control (3-0)3
(EE 411)
Application of digital computer for real-time control of dynamical systems. Topics include modeling and analysis of discrete time systems, sampling and Z-transform., state variable analysis and system simulations, design techniques for discrete systems and digital implementations. Use of MATLAB/Simulink.

EE 427 Introduction to Robotics (3-0)3
(Senior status)
Basic components of robot systems, coordinate frames, homogeneous transformations, kinematics for manipulator inverse kinematics, manipulator dynamics, Jacobian, manipulator control and robotic programming. Project required.

EE 431 Electrical Power Distribution Systems (3-0)3
(EE 335 and EE 336)
General considerations; load characteristics; subtransmission and distribution substations; primary and secondary distribution, secondary network systems; distribution transformers; voltage regulation and application of capacitors; voltage fluctuations; protective device coordination. (3 hr. lec.)

EE 435 Introduction to Power Electronics (3-0)3
(EE 355 and EE 356)
Application of power semiconductor components and devices to power system problems; power control; conditioning, processing, and switching. Course supplemented by laboratory problems. (3 hr. lec.)

EE 436 Power Systems Analysis (3-0)3 F
(EE 335 and EE 336)
Three-phase balanced and unbalanced loads and power calculations. Power system network modeling, steady-state analysis by the per unit method. Network calculations by matrices, node equations, node elimination, bus admittance, impedance matrices, and fault calculations. Transmission line inductance, capacitance, network models, and power circle diagrams. Symmetrical components and applications to unsymmetrical fault analysis of power systems. Application of short circuit study and flow analysis for design of industrial power distribution systems using ETAP and MATLAB software.

EE 437 Fiber Optics Communications (3-0)3
(EE 329 and EE 345)
Fundamentals of optics and light wave propagation, guided wave propagation and optical wave guides, light sources and light detectors, couplers, connections, and fiber networks, modulation noise and detection in communication systems. (3 hr. lec.)

EE 445 Introduction to Antennas (3-0)3
(EE 345)
Fundamental parameters of antennas, such as radiation patterns, radiation power density, beam width, directivity, gain, polarization, and input impedance. Radiation integrals and auxiliary potential functions. Far field radiation. Duality theorem and reciprocity theorem. Wire antennas, including small dipoles, finite length dipole, half-wavelength dipole, folded dipole, and Yagi-Uda antennas, loop antennas and log-periodic antennas.

EE 452 Network Synthesis (3-0)3
(EE 327)
Passive and active filter design using classic filter responses. Topics covered include the Butterworth, Chebyshev, and Bessel approximations. Biquadratic functions and design of filters. Sensitivity and computer programs. Design project required.

EE 456 RF Design (3-0)3
(§EE 461)

Discrete and integrated components for AM, FM, and SSB circuits. High frequency analysis of BJT, FET, and MOSFET circuits. Oscillators; mixers; power amplifiers; phone systems; modems; RF tests and measurements. Requires prototyping lab.

EE 461 Introduction to Communications Systems (3-0)3 F
(EE 329)
The study of analog and digital modulation techniques in communication systems. Topics include Fourier series and transforms; AM, FM, and pulse code modulation; baseband and broadband digital modulation and spread spectrum techniques. Introduction to random processes and linear systems, spectral analysis, and noise processing.

EE 463 Digital Signal Processing Fundamentals (3-0)3
(EE 329)
Theories, techniques, and procedure used in analysis, design, and implementation of digital and sampled data filters. Algorithms and computer programming for software realization. Digital and sampled data realizations, switched capacitor and charge-coupled device IC's. (3 hr. lec.)

EE 480 Senior Design Seminar (1-6)3
(Senior standing)
First part of the Senior Design capstone project. Student teams apply the engineering design process and modern analytical tools in creating engineering solutions or developing useful products. Complete system-level designs of the semester's projects are presented in written reports and oral presentations.

EE 481 Senior Design Project (1-6)3
(EE 480)
Continuation of EE 480. Detailed design and implementation of the system including choice of components, algorithm development, interfacing, troubleshooting, working in groups, and project management. Also covers professional topics, including ethics, liability, safety, socio-legal issues, risks and employment agreements.

EE 493 A-Z Special Topics (variable 1-6 Credit Hours)
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

Electronic Engineering Technology (ELET)

ELET 375 Power Systems and Industrial Devices (3-3)4 F
(ELET 372) (For non-EET majors)
A study of polyphase industrial and commercial power utilization. This course covers polyphase AC motors; DC motors and generators; transformers, including sizing, testing, winding connections, efficiency and voltage regulation; industrial motor controllers and protective devices; lighting system design principles and practices; conductor insulation classifications; and National Electric Code. Students are required to complete a design project as part of the final grade. The project includes a formal report and oral presentation.

ELET-410 Control Systems Technology (3-0)3 F
(MATH 315)
A study of continuous control systems in open and closed loop. Transfer functions in the frequency domain and the system's time domain response are included. Components including op-amps, potentiometers, synchros, motors, amplifiers, tachometers and

transducers; and the industrial control process concepts and systems are covered. The emphasis is on closed-loop feedback systems, system characteristics, and stability analysis. The use of the microcomputer in system control, system analysis, and simulation is introduced.

ELET 420 Microprocessors and Digital Systems (3-3)4 F
(ELET 290)
This course is a continuation of ELET 290 and covers such topics as analog/digital and digital/analog circuits. It emphasizes circuit minimization techniques such as Karnaugh mapping, variable entered maps, and the Quine McCluskey Method. Other areas explored include LSI circuits, such as multiplexers and demultiplexers, decoders, and memory devices. The course also includes an introduction to state machine design. Characteristics of logic families are covered. The final one-third of the course is an introduction to microprocessor architecture.

ELET-421 INTERNETWORKING VII (3-3) 4 As needed
(CCNA certification; ELET 222; or equivalent work experience, with department head approval)
Advanced instruction in switching theory and operation. Work with layer-two (Catylist 2900 series) and a layer-three (Catylist 4000 series) switching configurations. Trunking and VLAN implementation covered extensively. Students who successfully complete the advanced curriculum are eligible to earn Cisco Switching (exam 640-504) certification leading to Certified Network Professional (CCNP) certification.

ELET-422 INTERNETWORKING VIII (3-3) 4 As needed
(ELET 321, ELET-322, ELET-423; or equivalent work experience or certifications, with department head approval)
Capstone course for the advanced internetworking series of courses. Advanced instruction in internetwork support services and troubleshooting. Introduction to advanced troubleshooting methods and tools to detect and correct networking problems. Advanced diagnostics are introduced and developed in a hands-on internetworking environment that ranges across LAN and WAN implementations. Students who successfully complete the advanced curriculum are eligible to earn Cisco Troubleshooting Support (exam 640-506) certification leading to Certified Network Professional (CCNP) certification.

ELET 426 Microprocessor-Based Data Acquisition and Control (3-3)4 S
(ELET 410, ELET 420, or department consent)
Introduction to microprocessors, microcontrollers, and data acquisition boards for PC platforms including applications related to data acquisition and control topics. The application of assembly language programming is covered. Application of Intel 8051 family microcontrollers are introduced and several hardware applications including memory interfacing, timing considerations, and serial I/O are investigated through lab exercises. PC based data acquisition boards and high level visual programming environments are introduced through lab exercises.

ELET 431 Microcomputer Operating Systems (3-3)4 As needed
(ELET 420 or equivalent)
Microcomputer operating systems, assembly languages, application of software to the solution of technical problems.

ELET 432 Process Instrumentation (3-3)4 As needed
(ELET 320 or equivalent)
Application of physical principles to the measurement of flow, temperature, pressure, level,

etc. Signal conditioning for digital and computer readout and controllers.

ELET 433 Process Control Systems Technology (3-3)4 As needed
(ELET 410 & ELET 420 or department consent)
An introduction to the process control loop and its composite elements: process concepts and characteristics; devices for measuring process variables such as temperature, level, flow, pressure, etc.; controllers; control valves; and process computers. There is extensive investigation of computer simulation tools in the process control area. Laboratory experiments illustrate device applications and control loop performance.

ELET 436 Programmable Logic Controllers (3-3)4 F
(Junior status, ELET 290)
A study of PLC's and their applications to factory automation and industrial control. Includes laboratory experience with programming in ladder logic and hard-wiring PLC's to external devices.

ELET 493 Special Topics (1-4 credits) As needed
(Senior status BSEET)
A course devoted to new topics or developments in the field. Normally this course will only be taught once or twice and may become the basis for a designated course.

ELET 495 Independent Study (1-4 credits)
(Senior status and department consent)
Selected projects and/or research for senior BSEET students in current topics. Projects must be approved by faculty before registration.

Engineering (ENGR)

ENGR 101 Engineering Problem Solving I (2-0)2 S
Orientation to engineering disciplines, academic success strategies, engineering design process and team projects, use of computers in problem solving, technical report writing, presentation techniques, and internet applications.

ENGR 111 Software Tools for Engineers (3-0)3 F & S
(§MATH 126 and §MATH 128)
Use of software tools such as spreadsheets, numerical and symbolic mathematical analysis packages. Study of programming language, including elementary programming concepts and techniques. Preparation of graphs, interpolation and curve fitting, numerical integration and differentiation, and solution of linear and non-linear simultaneous equations. Emphasis is on the application of numerical methods and software applications. Laboratory practice is required.

ENGR 401 Senior Engineering Seminar (1-0)1 F & S
(Senior standing)
Ethics and professionalism, engineering safety, copyright and liability issues. Citizenship, role of the engineer in society, current issues in engineering, ecological considerations and impact of globalization.

ENGR 402 Fundamentals of Engineering Review (2-0)2 F & S
(Senior standing)
This course provides information and review materials for civil engineering students planning to take the discipline-specific Civil Fundamental of Engineering (Civil FE) exam. This course

requires prior knowledge of the subject matter and will concentrate on problem solving and review. Basic concepts will be referenced, but will be explained only where the majority of students lack earlier exposure to the material. The topics included are statics, dynamics, mechanics of materials, fluid mechanics, hydraulics and hydrologic systems, structural analysis, structural design (structural steel and reinforced concrete), geotechnical engineering, transportation engineering, environmental engineering, surveying, mathematics, probability and statistics, engineering economics, material properties, and ethics.

ENGR 493 Special Topics (Variable credit) (1-3) As Needed

Engineering Technology (GNET)

GNET 308 Advanced Computer Applications (2-3)3 S
(Department consent)
This course uses personal computers to select topics in advanced problem solving methodologies found in technology fields. Students will learn to use selected advanced computer applications software or programming languages in solving problems in technical calculus, statistics, graphics, matrices, complex variables, robotics, and advanced topics in engineering technology fields. Software or language selection in the technology fields will be based upon current developments in technology so that students will have an introductory exposure to some of the newest application tools.

GNET 311 Software Tools for Engineering Technology (3-0) 3
(Department consent)
Use of software tools such as spreadsheets, numerical and symbolic mathematical analysis packages. Study of programming language, including elementary programming concepts and techniques. Preparation of graphs, interpolation and curve fitting, numerical integration and differentiation, and solution of linear and non-linear simultaneous equations. Emphasis is on the application of numeric methods and software applications. Laboratory practice is required.

GNET 410 C++ Programming for Technology (2-3)3 F
(Department consent)
Emphasis on using C++ programming language in solving technology problems. Topics include the C environment, structured programming, technical calculations and functions, relational and logical operation, branches, loops, arrays and file creation.

GNET 412 Project Management (3-0)3 F
The primary focus of this course is the analysis and management techniques used to implement a successful project. Topics include: project planning, project scheduling and staffing, and project control; project administration, economic analysis, and reporting procedures; and material and labor cost estimating. Project management software will be introduced, a project will be analyzed, and an in-depth project report will be generated and presented.

GNET 489 Senior Seminar and Project (1-3)2 S
(For seniors in B.S. Engineering Technology and Industrial Technology programs.) Seminar on topics relating to improving processes, design, teamwork, problem solving, communication skills, life-long learning, professional and ethical issues, total quality, time management, and continuous improvement. Final project aimed at combining the skills and knowledge gained from the various areas of study in the student's field. The student will be

expected to report graphically, orally, and in written form on a final project approved by a departmental advisor. Presentations will be made to a representative board of the faculty.

GNET 495 Independent Study (1-4 credits) As needed
(Department consent)
To provide for supervised independent study or projects in Engineering Technology.

Engineering Technology – Civil (CIET)

CIET 310 Surveying Laws (3-0)3 As needed
The theory and legal principles of various real property ownerships and rights including conveyances of title to real property will be emphasized. The laws of evidence used to resurvey real property boundaries including rules of evidence evaluation and the role of the property surveyor in boundary disputes and litigations will also be dealt with in this course. Drawing of legal descriptions of (various types and preparation of abstracts along with actual court house research will be included.)

CIET 320 Construction Methods and Equipment (4-4)3 F-Even
(CIET 131, junior status or department consent)
Study of the methods used in civil engineering construction and the management of equipment that relates to these methods. Topics include earthwork, roads, pipelines, foundations and construction in concrete, masonry, steel, and timber. The course will be supplemented by organized field trips to construction sites.

CIET 325 Codes, Contracts, and Cost Analysis (4-4)3 S-Even
(Junior status)
Construction Planning. Economics and time value of money, use of interest formulas, inflation, depreciation, construction documents; construction contract administration; professional ethics construction scheduling using Grantt charts, critical path and PERT. Use of industry-standard software for planning and scheduling.

CIET 330 Computer Applications in Hydraulics and Hydrology (4-4)3 S-Even
(CIET 230)
Review of the principles of hydraulics and hydrology; hydraulic calculations using Flowmaster; and storm sewer design using StormCAD. Use of other industry-standard software for water resources applications with emphasis on Haestad Methods.

CIET 341 Surveying I (2-3)3 S
(MATH 114, DRET 120)
Fundamental concepts of surveying and their use in acquiring the data necessary for the preparation of topo-graphic maps. Topics include notekeeping, measurement of distances, angles, and elevations on the earth's surface; azimuth and bearing calculation; field traversing and traverse calculations and methods of topographic mapping. Use of appropriate equipment is emphasized in field labs. Use of current computer software is employed where appropriate.

CIET 355 Construction Estimating (4-4)3 S
This course is intended to provide students with the ability to estimate the costs of the various activities that constitute a construction project. Issues to be considered include contract documents, the bid-award process, types of estimates, breakdown of project, elements of the estimate, quantity take off techniques, estimating labor, material and equipment costs, use of "experience" tables and databases, adjustments for overhead,

profit and contingencies, assembling the estimate. Considerate use will be made of spreadsheets and an industry-standard estimating computer software package.

CIET 382 Environmental Engineering Technology (4-4)3 F Odd
(CIET 230, junior status)
This subject deals with water and air quality, stream pollution; purification of water, treatment and disposal of municipal wastewater; aspects of municipal solid waste and hazardous waste management; and environmental regulations and impacts. Included are routine environmental calculations and elements of design of treatment and pollution control systems. Basic lab and field tests and sampling techniques are also covered. Numerous field trips are included.

CIET 495 Independent Study (1-4 credits) As needed
(Department consent)
To provide for supervised independent study or projects in Civil Engineering Technology.

Engineering Technology - Mechanical (MEET)

MEET 316 Dynamics (3-0)3 F-Odd
(Department consent)
A study of mass moment of inertia; rectilinear, angular, and planar motion; work, energy, and power; and impulse and momentum as applied to technology.

MEET 393 Special Topics (1 to 4) As needed.
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

MEET 435 Energy Conversion Systems (3-0)3 S-Odd
(MATH 117, PHYS 201, junior status or permission of the instructor)
An introduction to energy conversion through a study of thermal heat and power. Fundamental thermodynamic processes, cycles, and systems will be covered. Applications studied will include electric power generation, internal combustion engines, material science, refrigeration, and air conditioning processes.

MEET 493 Special Topics (1 to 4) As needed.
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

MEET 495 Independent Study (1-4 credits) As needed
(Department consent)
To provide for supervised independent study or projects in Mechanical Engineering Technology.

English (ENGL)

ENGL 090 Developmental Writing (3-0)3
A course designed for students needing to develop basic writing skills. Entering freshmen with ACT verbal score 17 or less or SAT verbal 450 or less. May not register for English 101

until successful completion of ENGL 090. Pass/Fail grading. Course does not count toward graduation.

ENGL 091 Fundamental Reading (2-0)2
A course designed to improve reading speed and comprehension. Entering freshmen with ACT 17 or lower or SAT 450 or below in reading must pass ENGL 091 prior to registering for ENGL 101. Pass/Fail grading. Does not count toward graduation.

ENGL 101 Composition and Rhetoric (3-0)3
A course in writing non-fiction prose, principally the expository essay. Required of all bachelor's degree candidates unless the requirement is waived under regulations prevailing at the time of admission. (Note: Entering Freshmen who score 18 or below on the ACT English or 450 or below on the SAT verbal may not register for ENGL 101 until they demonstrate requisite skills on the English Department's Writing Placement Test. Because of anticipated revisions in SAT or ACT scores, these scores are subject to change. Students should contact the English Department for more current information.

ENGL 102 Composition and Rhetoric (3-0)3
(ENGL 101)
Writing college-level research papers based on argumentative models. Precision in footnotes, bibliographies, usage, punctuation, and stylistics assumed. Required of all bachelor's degree candidates unless the requirement is waived under regulations prevailing at the time of admission.

ENGL 111 Introduction to Creative Writing (3-0)3
(ENGL 101 and ENGL 102 or equivalent)
Practice in writing a sequence of structured exercises designed to enhance creative writing skills.

ENGL 131 Poetry and Drama (3-0)3
An introduction to the genres.

ENGL 132 Short Story and Novel (3-0)3
An introduction to the genres.

ENGL 201 Advanced Composition (3-0)3
(ENGL 101 & ENGL 102)
Composition for students who wish to further develop their expository and argumentative writing skills.

ENGL 212 Creative Writing: Fiction (3-0)3
An open enrollment introduction to the writing of fiction.

ENGL 221 The English Language (3-0)3
(ENGL 101 & sophomore standing)
An introduction to language, its structure in the mind, and its use in the United States.

ENGL 225 World Literature (3-0)3
(ENGL 102 or department consent)
Great literature from outside the United States and Great Britain; includes both Western and Non-Western Literature.

ENGL 232 Poetry (3-0)3

Appreciation and enjoyment of poems through critical and analytical reading. Studies in the various types of poetry, and of the language, imagery, and techniques of poetic expression.

ENGL 233 The Short Story (3-0)3
The short story's structure, history, and contemporary forms.

ENGL 234 Drama (3-0)3
The drama's structure, history, and contemporary forms.

ENGL 235 Novel (3-0)3
The novel's structure, history, and contemporary forms.

ENGL 241 American Literature 1 (3-0)3
A historical introduction and survey from its beginnings to the mid-nineteenth century.

ENGL 242 American Literature 2 (3-0)3
A historical introduction and survey from the mid-nineteenth century to the present.

ENGL 252 Appalachian Fiction (3-0)3
Reading of short stories, novels, and other narratives by Appalachian authors.

ENGL-258 Popular American Culture: Film & Fiction (3-0)
A study of the history and nature of science fiction from H.G. Wells to the present, with special attention to features of prose narration.

ENGL 259 Fiction for Adolescents (3-0)3
Designed for prospective teachers of English and language arts. Course focuses on recent fiction for adolescents as well as on traditional literature appropriate to the needs, interests, and abilities of youth. Evaluative criteria emphasized.

ENGL 261 British Literature 1 (3-0)3
A historical introduction and survey from the Middle Ages through the eighteenth century.

ENGL 262 British Literature 2 (3-0)3
A historical introduction and survey from the late eighteenth century to the present.

ENGL 263 Shakespeare 1 (3-0)3
Several of Shakespeare's most important plays.

ENGL 272 Modern Literature (3-0)3
British and American poetry, drama, and fiction from 1900 to 1960.

ENGL-301 Writing Theory & Practice (3-0)3
(ENGL 101 and ENGL 102)
Tradition and contemporary approaches to rhetoric and writing theory for professional writing and editing students who wish to develop their abilities to analyze and produce written texts.

ENGL-302 Editing (3-0) 3
A comprehensive approach to editing, including the correctness and effectiveness of a document, information design, and editorial responsibility. Students gain a realistic perspective on workplace practice through real-world scenarios, case studies, and technological applications.

ENGL-303 Multimedia Writing (3-0) 3
Study of communication and design issues in multimedia composition. Focuses on communication, creative expression, persuasion, interactivity, and rhetorical principles. Practice in composing multimedia documents such as online publications, interactive literary works, and tutorials.

ENGL-304 Business and Professional Writing (3-0) 3
(ENGL 101 and ENGL 102)
Students will analyze different writing contexts, meet the needs of different audiences, and organize and present material in letters, memos, and reports. Includes some research, Internet components, and a review of style, grammar and usage.

ENGL 305 Technical Writing (3-0)3
(ENGL 101 & ENGL 102)
Writing in scientific and technical fields. Introduces students to typical genres, workplace practices, document design, and conventions of writing for experts and non-experts. Meets GEC W requirement.

ENGL-306 Topics in Humanities Computing (3-0) 3
Topics include: literary studies (electronic publications, web-based, interactive fiction, poetry, drama, nonfiction), creative writing in digital media, composition on-line, pedagogy, cultural studies of electronic media, online communications, language studies. Topics rotate; check with instructor.

ENGL 307 Topics in Journalistic Writing (2-0)2
(ENGL 102 or department consent)
For students working regularly and actively on campus publications. Individualized instruction in reporting feature writing, or copy reading and editing. The course may be taken for a maximum of three semesters and six hours credit.

ENGL 312 Creative Writing Workshop: Fiction. (3-0)3
(Grade of "B" or higher in ENGL 212)
Advanced workshop in creative writing for students seriously engaged in writing fiction.

ENGL 321 History of the English Language (3-0) 3
Study of the nature of the language; questions of origins, language families, development, relationships of English as one of the Indo-European languages.

ENGL 329 Topics in English Language (3-0)3
This course rotates a set of topics offering students field specific approaches to the study of the English language. Students engage the language through active research paradigms focusing on the social context of the language.

ENGL 352 Topics in Appalachian Studies (3-0)3
Studies of authors, genres, themes, or topics in Appalachian literature.

ENGL 405 Fiction for Adolescents (3-0)3
A survey of fiction for adolescents with special attention to literary theories that assist its interpretation.

ENGL 493 Special Topics (1-6-0)1-6
(Department consent)

Investigation of topics not covered in regularly scheduled courses.

ENGL 495 Independent Study 1-6 Hr.
(Department consent)
Faculty supervised study of topics not available through regular course offerings.

Entrepreneurship (ENTR)

ENTR 201 Business Planning (3-0)3
Process of business planning and putting a business plan together. Skills needed to understand revenue recognition, resources needed to start a business, principles of entrepreneurship, business organization, and the language of business.

Exercise Physiology (EXPH)

EXPH 364 Kinesiology (3-0)3 S
(Junior standing or department consent)
Anatomical, mechanical, and musculoskeletal study of the human body as the instrument for efficient performance of motor activities.

EXPH 365 Exercise Physiology 1 (3-0)3 F
(Students must be admitted to the ACE program to take this course, junior standing or department consent)
The study of the functioning of body systems during exercise and the acute and chronic adaptations that occur from exercise stress.

Finance (FIN)

FIN 310 Investments (3-0)3
(FIN 325)
Investment analysis and management for the individual and the financial institution.

FIN 321 Personal Finance (3-0)3
Issues concerning the management of personal wealth. Topics include personal financial statements & records; budgeting; personal income taxes; consumerism; use of credit; housing & real estate; insurance; investment; and retirement planning.

FIN 325 Financial Management 1 (3-0)3
(ACCT 202 & MATH 123)
Nature of financial management; financial environment; some fundamental concepts of financial management-financial ratios; financial analysis, planning and control; time value of money. Capital budgeting risk-return analysis.

FIN 326 Financial Management 2 (3-0)3 S
(FIN 325)
Continues the discussion of fundamental of financial management begun in FIN 325. Management of working capital; international finance; cost of capital; financial leverage; long-term finance. Use is made of the case studies method.

FIN 480 International Finance (3-0)3
(FIN 325)
Course extends standard corporate finance concepts to the global arena, helping to understand the additional opportunities and challenges faced by a global firm.

Forensic Investigation (FRNX)

FRNX-101 Intro to Forensic Investigation (3-0) 3 F
Covers the history, organization, and functions of Forensic Investigation organizations; how disciplines of science produce evidence, and sciences role in the courtroom. Introduces types of crime scenes and how they are processed.

FRNX-210 Analysis and Collection of Fingerprint Evidence (3-1) 3 F
Explores the collection, classification, and comparison of friction-ridge skin prints; the application of probability in decision-making; and photographic and chemical-processing techniques applied to the recovery of latent friction ridge detail.

FRNX-210 Fingerprint Evidence Lab (0-0) 0 F
(FRNX-210 Lecture)
Provides Laboratory Experience related to FRNX-210

FRNX-212 Advanced Fingerprint Evidence (3-1) 3 S
The identification of unknown to known impressions ranging from easy to extremely difficult; ways latent prints can be distorted; "smart" searching protocols, and a deeper understanding of the formation of friction ridge skin.

FRNX-224 AFIS Systems (3-1) 3 S-Even
Introduction to Automated Fingerprint Identification Systems (AFIS) in use in the criminal justice system nationwide. 10-print entry and latent fingerprint entry will be conducted on a daily basis.

FRNX-301 Investigative Photography (3-1) 3 F
Covers nomenclature and operation of photographic equipment, with emphasis on lighting, exposure, depth of field, motion-blur and image composition. The use of alternate light sources, crime scene, macro and surveillance photography are highlighted.

FRNX-310 Firearms and Tool Marks (3-1) 3 S
Explores analysis of impression evidence including odontological, tool marks, foot and tread wear, tire tracks, and firearm-related impression evidence. Includes techniques for evaluating projectile trajectories as well as explosive evidence and post blast scenarios.

FRNX-311 Trace and Blood Spatter Evidence (3-1) 3 F
Covers various types of trace evidence and its collection, preservation and evaluation; and covers Bloodstain pattern analysis for incident reconstruction.

FRNX-312 Digital Evidence Protocols (3-1) 3 F-Even
Introduces digital investigations and the acquisition and analysis of digital evidence. Topics include computer investigations practices, processes, working with common computer software and disk structures, current computer tools and digital evidence controls.

FRNX-314 Questioned Documents (3-1) 3 F-Odd
Covers theories and principles of the creation, duplication, and alteration of written and printed materials; includes an overview of the methods used to identify the varying elements of papers, inks, and creation processes.

FRNX-315 Interviewing Theories and Practice (3-1) 3 F
Covers interviewing theories and techniques to determine emotional states from speech and body language, build rapport, prevent contamination, increase recall, and reduce the risk of false confessions.

FRNX-316 Medico-Legal Death Investigation (3-1) 3 S
Topics include the homicide crime scene, preliminary investigations, scene documentation, estimating time of death, identity of remains, death notification modes of death, suicides; sex and narcotics related homicides; evidence collection; autopsy; news media.

FRNX-318 Crime Scenes (3-1) 3 S
Examines concepts, field-tested techniques and procedures, and technical information concerning crime scene investigation. Focuses on the initial responding officer and duties of the investigator, and on various types of crime scenes.

FRNX-324 Forensic Anthropology and Osteology (3-1) 3 F-Odd
Includes background in forensic anthropology, most often associated with the analysis of skeletonized human remains, and guidelines for determining when to include and how to choose a forensic anthropologist in death investigations.

FRNX-326 Investigative Intelligence (3-1) 3 F-Even
This course provides a survey of intelligence techniques for protecting information (counter-intelligence), obtaining information, and analyzing raw information. The impact on public policy and the ethics of intelligence gathering are also covered.

FRNX-327 Sexual Assault Investigations (3-1) 3 F-Even
Explores the role of sexual assault investigation. Includes the history of society's response to sex crimes, investigation techniques, forensic applications, offender typologies and victim studies, legal procedures and judicial decisions, and expert testimony.

FRNX-422 Cold Case Investigations (3-1) 3 S-Odd
Provides an opportunity to work with a local law enforcement agency in re-examining an old case using modern technology. Students should be prepared to travel to crime scene locations and the offices of regional law-enforcement.

FRNX-484 Senior Seminar in Forensic Investigation (3-1) 3 S
An in-depth analysis of problems and issues in forensics. Identifies areas for development within a student's forensic education. Includes career and graduate school planning and portfolio, resume, and interview skills

FRNX-496 Senior Thesis (3-1) 3 S
A senior thesis project, such as a traditional research paper, a series of comprehensive research papers, or an active field project, that represents mastery of the discipline and shows analysis, synthesis, and evaluation.

Geography (GEOG)

GEOG 102 World Regions (3-0)3 F
Comparison and relationships of world regions. Geographical perspectives of contemporary global problems. Developing regions contrasted with modernized regions and the consequences of their interactions.

GEOG-108 Human Geography
A course introducing students to the study of geography as a social science by emphasizing the relevance of geographic concepts to human problems.

GEOG 240 United States and Canada (3-0)3 S
Regional study of the United States and Canada emphasizing such geographic features as climate, natural vegetation, topography, natural resources, population distribution and trends, agriculture, manufacturing, transportation systems, and regional culture.

Geology (GEOL)

GEOL 312 Geology (2-3)3 S
An examination of the earth from its beginning as a planet in the solar system to its present day structure. The course is chiefly concerned with the composition, character and architecture of the earth's crust and with the agencies and processes which are continually altering it. Includes laboratory experience in mineralogy, petrology, mapping, and a one-day field trip.

Health Science (HLSC)

HLSC 104 NUTRITION (3-0)3
The study of normal and therapeutic nutrition and its implications in health care across the lifespan. Principles of normal nutritional needs of infants, children, adolescents, pregnant, and lactating women, and other adults are studied in relation to the nutrients as provided by the basic four food groups.

History (HIST)

HIST 105 The Middle East (3-0)3
History of the Middle East from the rise of Islam (610 C.E.) to twentieth century. Special attention given to religion, gender issues, political developments, economic problems, relations with the West, cultural patterns and changes in the modern era.

HIST 106 East Asia: An Introduction (3-0)3
Focuses on modern China, Japan, and Korea. Consideration of important problems facing each nation today together with the cultural and historical developments which help explain contemporary affairs in East Asia.

HIST 152 Growth of the American Nation to 1865 (3-0)3
Examines the basic political, economic, and social forces in formation and development of the United States before 1865. Emphasis on national development from independence through the Civil War.

HIST 153 Making of Modern America: 1865 to the Present (3-0)3
(HIST 153 may precede HIST 152)
Continues the examination of basic political, economic, and social forces in the development of the United States since the Civil War.

HIST 179 World History to 1500 (3-0)3
Comparative history of Africa, Asia, and Europe from earliest times until 1500. Political, economic, social, and religious developments with emphasis on patterns of authority, the individual, nature, and society.

HIST 180 World History Since 1500 (3-0)3
(HIST 180 may precede HIST 179)
Comparative history of Africa, Asia, and Europe 1500 to the present. Political, economic, and social developments with emphasis on patterns of authority, the individual, nature, society, and the impact of the West.

HIST 203 Introduction to Medieval Europe 3
Treats the emergence of the distinctive culture of Western Europe from the Fall of Rome to the Renaissance, considering the transformation and interaction of politics, economics, society, religion, and ideas.

HIST 207 Revolutionary Europe (3-0)3 F
Traces the development of European history from the reign of Louis XV to the end of the Franco-Prussian War. Political and social history emphasized.

HIST 209 Twentieth Century Europe (3-0)3 S-Even
Traces the major political, economic, and social developments of Europe from World War I to the present.

HIST 218 History of Russia: 1900-Present (3-0)3 F-Odd
Revolution and reform to 1914; World War, 1917 revolutions; NEP and Stalinism to 1939; World War II and postwar Stalinism; reform under Khrushchev and Brezhnev; Gorbachev and dissolution of USSR; post-Soviet trauma.

HIST 250 West Virginia (3-0)3
Historical foundations and development of West Virginia, with particular emphasis upon the growth of the government, the economy, and the traditions of the state.

HIST 261 Recent America: The United States since 1918 (3-0)3
The 1920's, the New Deal, World War II, and a survey of developments since World War II.

HIST 277 Revolutions in Science and Technology (3-0)3 F
Examines particular periods of intensified change in science and technology, to develop general understanding of scientific and technical change. Episodes may include the scientific, industrial, Darwinian, or other revolutions.

HIST 293 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

HIST 352 History of the South (3-0)3
The colonial South; origins of sectionalism; Southern nationalism; Civil War and reconstruction; the new South; the contemporary South; central theme of Southern history.

HIST 354 American Frontier (3-0)3
Westward movement before 1890 with particular emphasis on ethnic groups and the associated clash of international cultures on the frontier. Consideration of international claims, native peoples in the market economy, the influence of Manifest Destiny, and economic aspects of fur trading, farming, and mining.

HIST 355 The African-American Experience (3-0)3
African homeland; origins of slavery in America; slavery during the American Revolution; pre-Civil War South; Reconstruction's meaning for Blacks in the South; Jim Crowism and disfranchisement; Black America in the two World Wars; the Civil Rights Movement.

HIST 367 History of England (3-0)3 F-Even
England under Celtic, Roman, and Anglo-Saxon rule; the Norman conquests, the Tudor Monarchy; Elizabethan and Stuart England; England in the Age of the American and French Revolutions; Nineteenth-Century England; England in World War I; England in World War II; the decline of England as a world power.

HIST-393 Outlaws: History and Myth (3-0)3
This course explores the historical and social role of outlaws, bandits, and the like across the globe. From the earliest civilizations through modernity, outlaws have contributed to the legal and cultural frameworks of society, existing on the fringes as heroes and malefactors alike.

HIST-400 Greece and Rome (3-0)3
Covers the Minoan and Mycenean civilizations, Archaic and Classical Greece, Alexander the Great and the Hellenistic Age, the Roman Republic, the Etruscan and Carthaginian states, and the rise of the Roman Empire.

HIST 453 Civil War and Reconstruction (3-0)3 S-Even
Causes as well as constitutional and diplomatic aspects of the Civil War; the role of American blacks in slavery, in war, and in freedom; and the economic and political aspects of Congressional Reconstruction.

HIST 455 Cultural and Intellectual History of the United States (3-0)3
Age of Enlightenment and Great Awakening; Revolutionary spirit and triumph of common man; science, technology, industrialization, and urbanization; American ideals in literature and the arts.

HIST 464 American Diplomacy Since 1941 (3-0)3
(HIST 152 & HIST 153 recommended.)
America's foreign policy and growing involvement in international relations including the U.S. role in World War II, the Korean War, and Vietnam.

HIST 471 History of Latin America (3-0)3
Colonial period; wars for independence; 19th century problems; internal confusion and political immaturity; relations with the U.S.; Latin America in the contemporary world.

HIST-473 Appalachian Regional History (3-0)3
Historical survey of Central Appalachia's three phases of development: traditional society of the nineteenth century, the transformation of a mountain society by industrialization at the turn of the twentieth century, and contemporary Appalachia.

HIST 484 Historical Research-Capstone (3-0)3 S-Even
(History major or department consent)
Capstone course that introduces historical research techniques. Completion and presentation of major research paper required.

HIST 485 Interdisciplinary Studies Senior Project 3-4 Hr.
(Senior standing & department consent)
Design and completion of interdisciplinary project. Requires approval of faculty committee.

HIST 493A-Z Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

HIST 495 Independent Study 1-6 Hr
(Department consent)
Faculty supervised study of topics not available through regular course offerings.

Human Services (HUMS)

HUMS 100 Community Service 1-3 Hr.
Arranged field placement in community service. Work hours will vary by credit and project.

HUMS 210 Introduction to Welfare (3-0)3 S
A basic course in work that includes an introduction to the concept of welfare history of welfare in the U.S., institutional aspects of welfare, basic work methods, and some techniques of community organization.

HUMS 300 Introduction to Health Care Organizations (3-0)3 F
An examination of the broad institutional and organizational components of the health care field with concentration on hospitals, nursing homes, health departments, and alternative delivery organizations. The role of both the physician and the health care manager in influencing the delivery of health care will be emphasized. Basic factors determining the cost and planning of health care will be considered.

HUMS 320 Public Administration (3-0)3 F
Concepts of public administration, including organizational theory, organizational authority and communications, personnel and financial administration, administrative responsibility in the public sector.

HUMS 330 Health Insurance (3-0)3
Institutions, laws, and public policy dimensions of health care insurance in America with a focus on health and insurance, the payment network, comparative systems and alternate delivery, and public policy.

HUMS 400 Health Services Law and Legislation (3-0)3 S
Recognition and comprehension of areas of legal liability in hospital activities; knowledge and familiarity with a wide variety of administrative duties and responsibilities of a nature,

such as administrative investigations, misconduct and line-of duty determinations, claims under the Medical Care Recovery Act, Federal Tort Claims Act, and other related matters.

HUMS 410 Fundamentals of Health Care Administration (3-0)3 S
Principles of modern health care administration, planning, organizing, directing, and controlling in health services management; contemporary issues in health care administration.

HUMS 420 Principles of Microhealth Finance (3-0)3 F
A critical study of healthcare finance at the department and sub-department level. The course will continue the study of financial information, decision making in the health care environment, processing mapping, capital and operational budgeting. Students will also be exposed to federal, state and local healthcare finance laws, rules and regulations.

HUMS 421 Principles of Macrohealth Finance (3-0)3 S
(HUMS 420)
The nature of financial information and the decision making process in the health care industry; the financial environment in health care organizations; trends in reimbursement systems; cost concepts, financial analyses, capital formation and project analysis.

HUMS 430 Medical Ethics (3-0)3 F
Philosophical and sociological investigation of complex moral problems in medicine and healthcare delivery, topics include euthanasia, abortion, allocation of scarce medical responses, accessibility problems, AIDS, research and human experimentation, among others.

HUMS 440 Long Term Care Administration (3-0)3 S-Odd
(HUMS 300)
The purpose of this course is to acquaint students pursuing a career in health care management with the dynamic and increasingly important field of long term care. The course provides a comprehensive overview of programs, policies, and services and examines the issues, challenges and dilemmas confronting long term care management and others in the field of health services. Long term care includes; skilled nursing facilities, assisted living, home health care, adult day care (both the social and the medical models), hospice, and a view of continuous care retirement facilities.

HUMS 460 Readings and Research in Health Services Administration 1-3 Hr
(Department consent)
Directed readings and research in health services administration.

HUMS 470 Health Services Planning (3-0)3 S-Even
Introduction to the history and development of health planning; introductory overview of planning techniques and familiarity with general quantitative methodology; legal, political, and economic factors in health care planning with emphasis on policy formulation and implementation.

HUMS 480 Grant Writing and Documentation (3-0)3 F-Even
Specialized course providing students with the knowledge and skills necessary to write grants that are based upon clearly defined needs analysis and project goals. Researching possible funding and sources, identifying goals and objectives, developing a program evaluation and time-line for a mock proposal will provide the students with real-life grant writing experience.

HUMS 489 Practicum Capstone Internship 3-12 Hr.
Observation, participation and hands-on experience in a suitable agency. The organization chosen for each individual will depend upon the occupational goals of the student. The selected facility will have a qualified administrator to enhance student learning opportunities. At least 75 work hours for each 3 hours of credit minimum and more is recommended.

HUMS 493 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

HUMS 494 Seminar (1-3-0)1-3
(Senior standing or department consent)
Presentation and discussion of topics of mutual concern to students and faculty.

Industrial Technology (INDT)

INDT 302 Industrial Safety (3-0)3 F
Topics covered in this course will include: manual handling and material storage; mechanical injuries; industrial environmental hazards - solvents, particulates, noise, radiation, toxicology, and ergonomics, etc.; monitoring instruments; protective devices; industrial hygiene programs and safety practice in the use of basic hand and machine tools, with reference to OSHA, and other regulatory safety regulations.

INDT 308 Automated Manufacturing (2-3)3 S
(Department consent)
Principles, techniques and applications of Numerical Control CNC programming utilizing CAD/CAM, automated methods of material handling, manufacture, assembly, inspection/testing and material processing. Field trips may be included.

INDT 352 Power and Transportation Technology (3-3)4 As needed
Principles of operation and application of the generation, control, transmission, and utilization of power with emphasis on internal and external combustion engines; simple machines and mechanical power transmission devices; fluid power; electrical theory and power; and transportation devices.

INDT 354 Industrial Materials (2-3)3 S
Introduction to types of materials - metals, ceramics, polymers, composites, and semiconductors; environmental degradation of materials, and material selection.

INDT 356 CAD/CAM Systems (2-3)3 S
(DRET 314, INDT 308)
Utilization of skills developed in drafting and manufacturing courses to take advantage of AutoCAD LISP capability to build Numeric Control (NC) code directly from a CAD drawing. Students develop skills in the use of NC programmer software that can develop NC code and down-load through a post processor for operation of NC equipment. Various arrangements and applications of these systems are studied.

INDT 360 Wood Technology (2-3)3 As needed
The wood and wood products industries are adapted to the classroom and laboratory experiences. Emphasis on the development of process skills, manufacturing setup, and other basics of wood product manufacturing to include understanding wood and wood properties, methods of fabrication, design, and future trends. Forest products, adhesives, lamination, and finishing.

INDT 384 Robotics 1 (2-3)3 F
Fundamental concepts of industrial robotics; manipulator control, sensor systems, microprocessor control schemes, robot geometry and configuration, path control, multi-axis dynamics.

INDT 410 Plant Equipment and Maintenance (2-3)3 S
(Department consent)
A study of various manufacturing equipment, maintenance planning, scheduling, staffing, training, and resource management for maintenance requirements in industrial/educational facilities. Field trips may be included.

INDT 413 Industrial Technology Practicum (1 to 3)
(Must be enrolled in a four-year technology program.)
Special assignment in industry to correlate with the Industrial Technology program. Students must have a designated industrial supervisor and a faculty coordinator. Final approval granted by the student's department head.

INDT 420 Construction Technology (2-3)3 S
(INDT 354 or department consent)
A broad coverage of current and standard methods of construction using wood, steel, masonry, and concrete. Requirements for energy efficiency of heating, plumbing, and air conditioning are included. Emphasis is on residential, light commercial, and industrial construction.

INDT 484 Robotics 2 (3-3)4 As needed
(INDT 384)
Advanced concepts of industrial robots; survey of robotic components, systems and manufacturers, robot work areas, material logistics, implementation considerations, future robotic considerations.

INDT 495 Independent Study (1-4 credits) As needed
Faculty supervised study of topics not available through regular course offerings.

Journalism (JRL)

JRL 101 Media and Society (3-0)3 S
Examines the relationship between media, culture and society, with emphasis on the history, structure, and organization of the mass media.

JRL 495 Independent Study 3
(Department consent)
Faculty supervised study of topics not available through regular course offerings.

Management (MANG)

MANG 310 Management of Small Business (3-0)3
(BCOR 370)
Focusing on the management of small business, the course is designed both for those seeking employment in small business, and for those entering large organizations which deal with small firms as suppliers, customers, and competitors.

MANG 330 HR Management Fundamentals (3-0)3
(BCOR 370)
Fundamental principles and practices related to the procurement, development, maintenance, and utilization of human resources. Focus on areas such as human resource planning, selection training, performance appraisals, compensation, safety and health, and labor relations.

MANG 350 Leadership in Business (3-0)3
The course focuses on deepening understanding of human behavior in organizations and to improve upon the practice of leadership and management as a result of increased understanding.

MANG 351 Database Management Systems (3-0)3
(BCOR 330)
Introduction to database theory, design, implementation, management, and models; development of database applications for management systems.

MANG 352 Business Applications Programming (3-0)3
(BCOR 330)
Provides an understanding of fundamental programming required to develop end-user business applications in an object-oriented, event-driven environment. These skills will be utilized in the Systems Design and Development course.

MANG 353 Advanced Information Technology (3-0)3
(BCOR 330 & MANG 420)
Presents the student with a fundamental knowledge of hardware and software technologies, including emerging technologies, focusing on the functionality and management of the technology in a business organization.

MANG 355 Data Communications (3-0)3
(BCOR 330)
Provides an overview of the TCP/IP model and related technologies of the data communications corporate infrastructure as well as a survey of the essential tools and strategies for the effective management of business networks.

MANG 360 International Business (3-0)3
(BCOR 370)
The course explores the cultural, economic, and political environments of business. Other topics include globalization, import and export, foreign direct investment, foreign currency exchange, regional economic cooperation, and the multinational enterprise.

MANG 370 Visual Basic for Business Applications (3-0)3
(CS 101)
Introduction to the programming process, including program design tools, coding and debugging. Design and implementation of programs/projects in Visual Basic.

MANG 371 Visual C# Net Programming for Web Applications (3-0)3
(MANG 370)
Programming of web applications for business, employing Visual C#. Net syntax and data structures Visual Studio files and databases using ASP.NET for web publishing.

MANG 372 Advanced Web Page Design (3-0)3
(BCOR 330 & MANG 371)
Advanced concepts of Web Page design including frames and hyperlinks behavior, objects and classes, data structures, and database interactivity. VBA automation of MS Office applications: Access, Excel, and Word.

MANG 375 Business Simulation (3-0)3 S
(ACCT 331, BCOR 350, BCOR 370 and FIN 325)
Business games that provide students with simulated real-world managerial decision-making experiences. The simulation provides students with the opportunities to make decisions that cross over functional lines.

MANG 386 Business Statistics (3-0)3
(MATH 123)
Elementary principles of collecting and presenting statistical data; frequency distribution; grouping averages; dispersion and skewing; sampling processes; statistical inference; simple correlation; series analysis.

MANG 420 Business Information Systems (3-0)3
(BCOR 330 & BCOR 370)
Use of EDP for decision making with emphasis on application in the functions of finance, marketing, personnel, accounting, and operations management.

MANG 422 The Individual and the Organization (3-0)3
(BCOR 370)
Examination of how the individual, the group, and the organization interact to influence the behavior of the business organization and that of its human resources.

MANG 428 Management Science 1 (3-0)3
(BCOR 370)
Study and application of quantitative methods to business problems in which deterministic conditions prevail.

MANG 429 Management Science 2 (3-0)3
(MANG 428)
Study and application of quantitative methods to business problems in which probabilistic conditions prevail.

MANG 450 Systems Analysis (3-0)3
(BCOR 330)
Emphasizes the systems approach, concentrating on the first half of the systems development cycle: feasibility studies, cost/benefit analysis, organizational analysis,

assessment of information needs, and project planning. Effective teamwork and communications are stressed.

MANG 452 Systems Design and Development (3-0)3
(MANG 351, MANG 352 & MANG 450)
Follows the Systems Analysis course with the second half of the systems development cycle; user interface design, data design, process design, system specifications, use of software development tools, documentation, testing, conversion, and maintenance.

MANG 491 Professional Field Experience 1-6 Hr.
(Department consent; may be repeated up to a maximum of 6 Hours)
Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

MANG 493 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

Marketing (MKTG)

MKTG 315 Consumer Behavior (3-0)3
(BCOR 350)
The consumer decision process in a marketing framework. Emphasis on psychological and sociological concepts which influence the decision process.

MKTG 325 Marketing Research (3-0)3
(BCOR 350)
Scientific approach to the solution of marketing problems with emphasis on research methods and techniques.

MKTG 380 Integrated Promotions (3-0)3
(BCOR 350)
An analysis of the promotional mix options; advertising; personal selling; and sales promotion, and the integration of these options into the marketing mix.

MKTG 410 Retail Management (3-0)3
(BCOR 350)
The organization and operating environment of retail firms. Special emphasis placed on consumer market segmentation and the marketing variables of merchandise mix, effective pricing, store location, and communication with suppliers and consumers.

MKTG 420 Sales Management (3-0)3
(BCOR 350)
Concentrates on the managerial responsibilities of sales managers for directing, motivating, and controlling a sales force plus the techniques of selling, including objections and closing.

MKTG 485 Global Marketing (3-0)3
(BCOR 350)
Evaluation and analysis of marketing strategies in a global environment; examination of the relationship between international buyer behavior and the elements of the marketing mix.

Mathematics (MATH)

MATH 91 Elementary Algebra (3-0)3
(For students with ACT score of 14-16)
Addition and multiplication of polynomials; integral exponents; graphing linear equations; linear inequalities; solving systems of linear equations; real number operations; solving linear equations. Credit not applicable toward degree requirements.

MATH 93 Intermediate Algebra (3-0)3
(For students with ACT score of 17-18 or MATH 91)
Radical expressions; radical, rational, and quadratic equations; factoring; rational expressions; absolute value equations and inequalities; solving systems by determinants. Credit not applicable toward degree requirements.

MATH 121 Introductory Concepts of Mathematics (3-0)3 F/S
(MATH 91 or a math ACT of 17 or more and 1 unit of high school algebra)
(Designed for non-science majors who do not need the techniques of mathematics for other coursework in their programs.)
Topics in modern mathematics.

MATH 123 Finite Math (3-0)3
(MATH 93, or 1 unit of high school algebra and ACT math score of 19 or higher)
Fundamentals of algebra; functions and graphs; linear functions; introduction to exponential and logarithmic functions; solving linear and quadratic equations; matrices.

MATH 126A College Algebra (3-2)3
(For engineering, science, or mathematics students with 2 units each of high school algebra, 1 unit of high school geometry and a math ACT score of 19-22; MATH 93) (3 credits applicable toward degree requirements.) (See MATH 126B for Topics)

MATH 126B College Algebra (3-1)3
(2 units of high school algebra, 1 unit of high school geometry and ACT math score of 23 or higher. Students who have passed MATH 93 must register for MATH 126A and not MATH 126B.)
Review of the real number system and algebraic expressions, equations, inequalities, graphing, functions, exponential and logarithmic functions, basic matrix operations and properties systems of equations, polynomials.

MATH 128 Plane Trigonometry (3-0)3
(MATH 93; or 2 units of high school algebra, 1 unit of high school geometry and ACT math score of 19 or higher)
Trigonometric functions, identities, vectors, complex numbers, and trigonometric equations.

MATH 150 Introduction to Calculus (3-0)3 S
(Grade of "C" or better in MATH 123 or MATH 126A or MATH 126B)
For in other disciplines needing calculus for applications. Limits of sequences and functions, continuity, derivatives, and integrals of polynomials, rational functions, and exponential and logarithmic functions, partial derivatives, maxima and minima.

MATH 155 Calculus 1 (4-1)4
(Grade of "C" or better in MATH 126A and MATH 128; or ACT math score of 28 or higher).
Introduction to limits, continuity, derivatives, antiderivatives, definite integrals, and applications of the derivative.

MATH 156 Calculus 2 (4-0)4
(Grade of "C" or better in MATH 155)
Techniques of integration, applications of the definite integral, polar coordinates, indeterminate forms, and infinite series.

MATH 218 History of Mathematics (3-0)3 S As needed.
Development of mathematics through calculus, with emphasis on mathematical theories and techniques of each period and their historical evolution.

MATH 238 Modern Geometry for Teachers (3-0)3 As needed
(MATH 251)
Foundations of geometry. Special topics from Euclidean, projective, and non-Euclidean geometries.

MATH 251 Multivariable Calculus (4-0)4
(Grade of "C" or better in MATH 156)
Introduction to solid analytic geometry, vector algebra, matrix algebra, calculus of several variables.

MATH 261 Elementary Differential Equations (4-0)4
(MATH 251 or grade "B" or better in MATH 315)
Ordinary differential equations, Laplace transforms, partial differential equations, Fourier series, applications.

MATH 283 Introduction to Concepts of Mathematics (3-0)3 S
(MATH 156 and department consent)
Elementary logic, basic theory, relations and functions, equivalence relations and decomposition of sets, order relations, cardinality. Emphasis on learning to prove theorems.

MATH 315 Advanced Technical Mathematics (4-0)4 F
(MATH 155 or department consent)
(This course may not be used as credit toward a math major or minor.)
Applications of integration to areas, volumes, centroids, and moments of inertia; differentiation and integration of trigonometric, logarithmic and exponential functions; methods of integration, expansion of functions in series; elementary differential equations.

MATH 341 Introduction to Algebra Structures (3-0)3 As needed
(MATH 283 or department consent)
A study of groups, rings, and fields together with their substructures, quotients and products, morphisms; the fundamental homomorphism theorems.

MATH 378 Discrete Mathematics (3-0)3 S
(MATH 251)
Permutations, combinations, binominal theorem, inclusion-exclusion formula, recurrence relations, generating functions, elementary graph theory (connectivity, paths, circuits, trees, vertex and edge coloring, graph algorithms) matching theory, and discrete optimization.

MATH 381 Topology (3-0)3 As needed
(MATH 283 or department consent)
Introduction to metric and topologial spaces. Topics include: continuity, convergence, separation, compactness, and connectedness.

MATH 420 Numerical Analysis 1 (3-0)3 As needed
(MATH 261 or MATH 441, Programming ability required)
Computer arithmetic, roots of equations, interpolation, Gaussian elimination, numerical integration and differentiation. Numerical solution of initial value problems for ordinary differential equations. Least square approximations.

MATH 430 Math for Citizenship (1-0)1 As needed
Participation in math tutorial lab and other math related activities.

MATH 441 Applied Linear Algebra (3-0)3
(MATH 251)
Matrix algebra with emphasis on algorithmic techniques and applications to physical models. Topics include solution of large systems of equations, orthogonal projections and least squares, and eigenvalue problems.

MATH 448 Probability and Statistics (3-0)3
(MATH 251; grade of B or higher in MATH 315)
Samples spaces; probability, definition and elementary properties; random variables, expectation; special distributions; estimation; hypothesis testing; linear regression.

MATH 451 Introduction to Real Analysis 1 (3-0)3 F
(MATH 283 or department consent)
A study of sequences, convergence, limits, continuity, definite integral, and derivative, differentials, functional dependence, multiple integrals, sequences, and series of functions.

MATH 452 Introduction to Real Analysis 2 (3-0)3 S
(MATH 451)
A study of sequences, convergence, limits, continuity, definite integral, derivative, differentials, functional dependence, multiple integrals, sequences, and series of functions.

MATH 456 Complex Variables (3-0)3 As needed
(MATH 251 and department consent)
Complex numbers, functions of a complex variable; analytic functions; the logarithm and related functions; power series; Laurent series and residues; conformal mapping and applications.

MATH 493 Special Topics (1 to 4) As needed
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

MATH 496 Senior Thesis (1 to 3) As needed
(Department consent)

Mechanical Engineering (MAE)

MAE 201 Applied Engineering Analysis (3-0)3 S
(ENGR 111, MATH 156)
Overview of engineering analysis fundamentals. Applied linear algebra and statistical analysis. Use of software such as spreadsheets, symbolic and analytic mathematical modeling packages, solid modeling packages, preparation of graphs of data and curve fitting.

MAE 240 Manufacturing Processes (2-3)3 F & S
An introduction to manufacturing systems and strategy. A study of Manufacturing Processes. Measurement and quality assurance, engineering materials; machining, welding and casting processes; hot and cold forming and joining processes, manufacturing and production systems, thermal treatments; equipment and process demonstration films. Lab involves student performed projects utilizing experience in operation of the various processes.

MAE 241 Statics (3-0)3
(MATH 155)
Addition and resolution of forces, equilibrium of a particle, moment of a force, vector methods, equivalent force systems, equilibrium in two and three dimensions, analysis of trusses, analysis of frames and machines, analysis of beams - shear and moment diagrams, friction, centroids, center of gravity, and moment of inertia.

MAE 242 Dynamics (3-0)3
(MAE 241, MATH 156)
Particle dynamics including study of rectilinear and curvilinear motion, Newton's laws, work and energy, impulse and momentum. Systems of particles, kinematics of rigid bodies, plane motion of rigid bodies, kinetics of rigid bodies in three dimensions.

MAE 243 Mechanics of Materials (3-0)3
(MAE 241, MATH 156)
Analysis of stresses, strains, and deformations in tension members, thin-walled pressure vessels, connections, circular torsion members, beams and columns. Members with combined loadings are also covered.

MAE 311 Intermediate Mechatronics (3-0) 3 As needed
(MAE 242, MATH 156, EE 221)
Circuits and electronics, sensors, and actuators. Analysis and synthesis of mechatronic systems, electromechanical system coupling, actuating devices, real time interfacing and case studies.

MAE 320 Thermodynamics (3-0)3 S
(MATH 156)
Fundamental concepts of energy analysis along with models for material properties necessary for problem solving including use of computer-aided thermodynamic property tables; First Law, introduction to Second Law, pressure, temperature, volume, enthalpy, and entropy. Design of some simple thermal systems.

MAE 321 Applied Thermodynamics (3-0)3 F
(MAE 320)
Continuation of Thermodynamics. Irreversibility and availability; power and refrigeration cycles, thermodynamic relations; mixtures and solutions; chemical reaction; phase and chemical equilibrium; flow through nozzles and blade passages. Design of some illustrative thermal systems.

MAE 331 Fluid Mechanics (3-0)3
(MAE 242, MATH 156)
Properties of fluids, fluid statics, fluid kinematics, thermodynamic principles, momentum and energy principles, similitude and dimensional analysis, laminar and turbulent flow, viscous effects, flow in pressure conduits.

MAE 332 Experimental Methods (0-3)1 S
(MAE 321, MAE 201)
Methodology of experimental investigation; common properties of electrical, mechanical, thermal, balancing, fluid systems, and statistical analysis of data.

MAE 333 Mechanical Measurements (0-3)1 F
(MAE 320, MAE 201)
Laboratory measurements of physical quantities relevant to the mechanical engineering practice. Probability and statistical analysis of experimental data. Calibration of instruments. Sensors and transducers for temperature, pressure, strain, and fluid flow measurements. Technical report writing.

MAE 340 Vibrations (3-0)3 S
(MATH 261, MAE 242)
Review of linear algebra. Systems of one degree of freedom, undamped and damped; free and forced vibrations; transient and nonlinear vibrations; multi-degree of freedom systems with simulations by analog or digital computer.

MAE 342 Dynamics of Machines (3-0)3 F
(MAE 242)
Analysis of motion in linkages, cams, gears and other basic mechanisms. Synthesis of linkages, cams, gear profiles, and gear trains. Analysis techniques include algebraic, graphical methods, and computer simulation.

MAE 405 Senior Mechanical Engineering Lab (0-3)1
(MAE 332, MAE 423, MAE 201)
Analysis and testing of selected thermal or mechanical systems, such as, turbines, fans, pumps, air conditioning, heat pump, and internal combustion engines, statistical analysis.

MAE 407 Power Plant Engineering (3-0)3 As needed in F
(MAE 321)
Fuels and combustion, steam generators, super heaters, reheaters; condensers, economizers; feed water heaters; air preheaters, draft systems; introduction to nuclear power plant systems; aspects of environmental pollution, alternative energy systems including hydroelectric plants; field trips.

MAE 410 Materials Science (3-3)4 S
(CHEM 115, MAE 243, senior status)
Metals, microstructure, chemical composition, heat treatment, plastic deformation, fracture, fatigue, creep, and wear; introduce preparation and microscopic examination of specimens; advanced materials testing.

MAE-419 MAE 423 HEAT TRANSFER LAB (0-3) 1 S
(Must be taken with MAE 423)
It is a laboratory session consisting of traditional and computer-linked experiments on various heat transfer processes such as conduction, convection and radiation involving several types of commercial heat transfer equipment.

MAE 423 Heat Transfer (3-0)3 S
(MAE 320, §MAE 321, §MAE 419)
Steady-state and transient conduction; one-, two-, and three-dimensional conduction; free and forced convection; radiation; heat exchangers; heat and mass transfer by analytical, numerical, analogical, and experimental methods. Design of thermal systems.

MAE 425 Internal Combustion Engineering (3-0)3 As needed
(MAE 321)
Operating characteristics; engine cycles; thermochemistry and fuels; air and fuel induction; fluid motion within combustion chamber; combustion; exhaust flow; emissions and air pollution; heat transfer in engines; friction and lubrication, survey of recent developments.

MAE 427 Heating/Ventilating/ Air Conditioning (3-0)3 As needed
(MAE 321, MAE 423 or department consent)
Air and humidity relations; comfort and indoor air quality; building heat transfer; design heating and cooling loads; air distribution; refrigeration; systems and equipment; system energy analysis; control systems.

MAE 428 Aerodynamics (3-0)3 As needed
(MAE 321, MAE 331)
Bernoulli's equation; dimensional analysis; potential flow analysis; lift analysis; compressible flow through nozzles; shock wave analysis; boundary layer effects; experimental testing in subsonic and supersonic flows.

MAE 429 Theory of Turbomachines (3-0)3 As needed
(MAE 321, MAE 331)
Dimensional analysis; energy transfer between a fluid and a rotor; thermodynamics of gas flow; flow of fluids in turbomachines; centrifugal pumps and compressors; radial flow turbines; axial flow turbines; performance of compressors and pumps and comparison of types.

MAE 440 Industrial Hydraulics: Components and Circuits Design (3-0)3 As needed F
(MAE 242, MAE 331 or Department Consent)
Basic laws of fluid power. Fluids and auxiliaries. Energy input, energy control and energy output devices. Hydraulic circuits, symbology, operation, analysis and design practices. Component selection and performance analysis.

MAE 445 Computer Applications in Engineering (3-0)3 As needed in Fall
(ENGR 111, MATH 251)
Use of spreadsheets for engineering applications. Graphics, drawing and plotting packages. Mathematical packages for equation solving and symbolic algebra. Overview of MATHCAD, MAPLE, MATLAB, 3-D solid modeling using I-DEAS and AUTODESK INVENTOR, Computational Fluid Dynamics Modeling, Visualization and Post-processing.

MAE 449 Experimental Stress Analysis (2-3)3 As needed
(MAE 243, MAE 454)
Mechanical, optical, electrical, grid, Moire fringe and brittle coating methods; strain gauge circuitry; photoelasticity; strain indicators; recorders, reflection and circular polariscopes.

MAE 454 Machine Design and Manufacturing (2-3)3 F
(MAE 243; §MAE 342)
Working stresses, theories of failure, fatigue, welded joints, design of machine elements such as shafting, screws, springs, belts, clutches, brakes, gears, bearings and miscellaneous machine elements.

MAE 455 Computer Aided Design and Drafting (2-3)3 F
(MAE 201, MAE 342 & senior status or department consent)
Computer-aided design fundamentals. Use of graphics capabilities of the microcomputer for Engineering Design and Simulation. Exposure to commercial CAD and Motion Simulation packages. 2-D and 3-D computer drafting. Solid Modeling applications. A preparatory course for Finite Element Method.

MAE 456 Finite Element Method (2-3)3 S
(§MAE 423, MATH 251, MAE 454, MAE 455)
Finite element formulation of boundary value problems in engineering. Design and application of one– and two— dimensional elements. The direct formulation approach will be used to formulate the problems. Modern FEM and solid modeling software will be utilized for the solution of representative problems.

MAE 460 Automatic Controls (3-0)3 S
(EE 221, MATH 261)
Analysis and design for controlling solid body, thermal, and electromechanical systems. Control system design to satisfy performance criteria including stability, response time, steady-state error, and disturbance rejection using both analytic solutions and numerical simulation; compensation design in the time and frequency domains.

MAE 463 Advanced Machine Design (3-0)3 As needed in S
(MAE 201, MAE 454)
Theories of failure in 2-D and 3-D stress systems. Fatigue failure modes and their analysis. Fatigue life estimation techniques. Plasticity of metals and applications. Creep behavior of engineering materials. Shock, wear, corrosion, and other modes of failure. Thermal stresses.

MAE 464 Mechanical Engineering Projects (1 to 4) As needed
(Junior or senior status)
An investigation of analytical or experimental nature; design, construction and testing of an experimental apparatus.

MAE 468 Advanced Vibrations (3-0)3 As needed
(MAE 340)
Three-dimensional kinematics and kinetics of particles and rigid bodies. Lagrangian mechanics; Hamiltonian methods; Equations of motion for strings, membranes, prismatical bars, and plates for various boundary conditions; approximate methods for complicated shapes.

MAE 480 Systems Design 1 (3-0)3 F
(MAE 454 one semester before graduation)
Professional ethics, the role of engineer in society, professionalism and current issues in engineering. Systems design applied to a project; lectures cover morphology of design, the design processes, decision and optimization techniques, and computer aided design. Begin a design project to be completed in MECE 491.

MAE 481 Systems Design 2 (3-0)3 S
(MAE 480)
A semester-long design project in which students normally work in teams. Formal report required at the end of the semester.

MAE 493 Special Topics in Mechanical Engineering 1 to 3 as needed.

Military Science (MILS)

MILS 101 Military Science 2
The organization and development of the U.S. Army and ROTC from its inception to the present. The structure and role of the U.S. defense establishment with emphasis on the broad range of America civil-military relations.

MILS 102 Military Science 2
The development of American military institutions, policies, experience, and examined in the perspective of modern military thought. Traditions in peace and war are discussed. Past wars are examined in the prospective of modern military thought.

MILS 103 Leadership Laboratory 1 1
(Open only to and required of students in the associated Military Science course)
This laboratory course is designed to offer the student an opportunity for integration and application of training management and leadership skills. Team academic alignment. Course includes confidence building exercises such as rappelling, group presentations, basic marksmanship, and drill and ceremonies.

MILS 201 Military Science 2
Introduction to basic leadership and management with emphasis on the fundamental concepts and skills required of today's citizen-soldier.

MILS 202 Military Science 2
Continued instruction in basic fundamentals of leadership and management, with emphasis on the military application of these fundamentals. Introduction to small unit tactics and organization.

MILS 203 Leadership Laboratory
(Open only to students in the associated Military Science courses 101, 102, 201, 202)
This laboratory course is designed to offer the student an opportunity for integration and application of training management and leadership skills. Team members and leadership positions are tailored based on the students' academic alignment. Course includes confidence building exercises such as rappelling, group presentations, basic marksmanship, and drill and ceremonies.

MILS 210 Camp Challenge 0-6
(Open only to students who have not taken all four of MILS 101, 102, 201 and 202, and who pass a physical examination) (Paid for by ROTC)
A six-week summer camp conducted at an Army post. The student receives pay. Travel lodging and most meal cost are defrayed by the Army. The environment is rigorous and is similar to Army basic training. No military obligation incurred. Three different training cycles are offered during the summer, but spaces are limited by the army. Candidates can apply for a space any time during the school year prior to the summer. Students are eligible to compete for ROTC scholarships during the summer camp. Completion of MILS 210 qualifies

a student for entry into the advanced course. The advanced course consists of the courses MILS 301, 302, 310, 401 and 402. It is open only to students who have completed the Basic course or earned placement credit for it. The advanced course is designed to qualify a student for a commission as an officer in the United States Army. Students must complete MILS 310, a six-week advanced camp during the summer, usually between the junior and senior years. The courses must be taken in sequence unless otherwise approved by the Professor of Military Science. Students receive $150 per month during the school year.

MILS 301 Military Science 3
(Department consent)
Series of practical opportunities to lead small groups, receive personal assessments and encouragement, and lead again in situations of increasing complexity. Uses small unit defensive tactics and opportunities to plan and conduct training for lower division students both to develop skills and as vehicles for practicing leading. The military science leadership lab (MILS 303) plus participation in the advanced physical fitness course are required in conjunction with this class. Participation in one weekend field training exercise is also required, and one or two more weekend exercises may be offered for optional participation.

MILS 302 Military Science 3
(Department consent)
Continues methodology of MILS 301. Analyze tasks; prepare written or oral guidance for team members to accomplish tasks. Delegate tasks and supervise. Plan for and adapt to the unexpected in organizations under stress. Examine and apply lessons from leadership case studies. Examine importance of ethical decision making in setting a positive climate that enhances team performance. The military science leadership lab, MILS 303, plus participation in the advanced physical fitness course are required in conjunction with this class. Participation in one weekend field training exercise is required; two other weekend exercises are optional.

MILS 303 Loading Small Organizations 1 2
(Open only to and required of students in the associated military science course)
Different leadership roles are designed for students at difference levels in the program. Involves leadership responsibilities for the planning, coordination, execution and evaluation of various training and activities with basic course students and for the ROTC program as a whole. Students develop, practice and refine leadership skills by serving and being evaluated in a variety of responsible positions.

MILS 310 ROTC Advanced Camp 0-6
(Only open to and required of students who have completed MILS 301 and MILS 302)
A six-week camp conducted at an Army post. The student receives pay. Travel, lodging and most meal costs are defrayed by the U.S. Army. The advanced camp environment is highly structured and demanding, stressing leadership at small unit levels under varying, challenging conditions. Individual leadership and basic skills performance are evaluated throughout the camp. Although this course is graded on a Pass/Fail basis only, the leadership and skills evaluated at the camp weigh heavily in the subsequent selection process that determines the type commission and job opportunities given to the student upon graduation from ROTC and the University.

MILS 401 Military Science 3
(MILS 301 & MILS 302 or department consent)
Stresses the responsibilities of an officer and affords leadership experience as a cadet leader. Military staff procedures, military law, and military organizations, which prepare the student for future services, are studied.

MILS 402 Military Science 3
(MILS 401 or department consent)
Advanced leadership techniques, unit operations, and personnel management problems are discussed in seminars. The military role in United States foreign policy and world affairs is examined.

MILS 403 Leadership Challenges/Goal Setting 2
(Open only to and required of students in the associated military science course)
Different leadership roles are designed for students at different levels in the program. Involves leadership responsibilities for the planning, coordination, execution and evaluation of various training and activities with basic course students and for the ROTC program as a whole. Students develop, practice and refine leadership skills by serving and being evaluated in a variety of responsible positions.

Multidisciplinary Studies (MDS)

MDS-491 Professional Field Experience 1-18 Hrs.
(Consent. (May be repeated up to a maximum of 18 hours.) Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development. MDS 491 Guided Electives are projected for IDSC internship credits.

MDS-492 Directed Study 1-3 Hrs.
Directed study, reading, and or research. MDS 492 Guided Electives are projected for IDSC undergraduate research credits.

MDS-495 Independent Study 1-6 Hrs.
Faculty supervised study of topics not available through regular course offerings. MDS 495 Guided Electives are projected for the IDSC Senior Project.

Music (MUSC)

MUSC 100A Band: Concert (0-2-0)0-2
Transcriptions for symphonic band; compositions written especially for band, wind ensemble, and stage band. For enjoyment of members and enrichment of campus life. May be repeated for credit.

MUSC 100D Band: Marching (0-2-0)0-2
Performance at football and basketball games, parades, and certain civic events; for enrichment of campus life. May be repeated for credit.

MUSC 105 University Choir (0-2-0)0-2
Performance of choral music on campus, in the community, and on tour. May be repeated for credit.

MUSC 111 Introduction to Music (3-0)3
Introductory course designed to develop an appreciation and understanding of the significance of music as a fine art, and to help the students develop intelligent listening habits.

MUSC 115 Introduction to History of Jazz (3-0)3
An introduction to jazz, its characteristics, important performers, and their music, including an historical survey with attention to the changing style of the music.

MUSC 116 Music in World Cultures (3-0)3
Examination of music from various cultures (e.g. Native America, South India, Japan, Africa) within their cultural contexts.

MUSC 127 Applied Music: Voice (1-4-0)1-4
Audition for placement required. Credit and length of lesson varies dependent on curriculum. Weekly lesson to develop technical, artistic and pedagogical aspects of music. May be repeated for credit.

MUSC 293 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

Nursing (NSG)

NSG-100 Introduction to Nursing (2-0) 2
Introduction to the role of the nurse in modern health care: critical thinking, nursing interventions, professionalism, caring, and communication in nursing practice with emphasis on safety, quality health, culture, ethics, leadership, policy.

NSG-211 (formerly NSG 293B) Health Assessment and Communication (4-2) 6
(NSG 100, Sophomore nursing standing)
Examination of concepts, principles, processes, and models that guide nursing practice related to physical, psychosocial, spiritual, developmental, intellectual assessment and communication across the lifespan in the classroom, simulation, and various clinical settings.

NSG-212 (formerly NSG 293C) Foundations of Nursing Practice (4-2) 6
(NSG 211, Sophomore nursing standing)
Theories, concepts, principles, and processes that lay the foundation for critical thinking, nursing interventions, communication, professional role and caring in the practice of nursing. Application of the nursing process in classroom, simulation and clinical settings.

NSG-276 (formerly NSG 293D) Introduction to Evidence Based Practice/Research
(3-0) 3
(STAT 211)
Theory, concepts, and methods of the research process intended to provide a basic understanding that is necessary for the translation of current evidence into nursing practice.

NSG-310 (formerly 393G) Women's Health Across the Lifespan (2.5-1.5) 4
(NSG 212, Junior nursing standing)
Human response to normal and abnormal changes in health status across the female lifespan and adaptations of the childbearing family. Provision of holistic nursing care to women and childbearing families in the clinical area.

NSG-311 (formerly 393F) Alterations in Adult Health 1 (3-3) 6
(NSG 212, Junior nursing standing)
Pathophysiology and holistic nursing care of adults experiencing acute and chronic problems. Use of the nursing process to plan and provide interventions appropriate to health care needs in the clinical setting.

NSG-312 (formerly 393C) Alterations in Adult Health 2 (3-3) 6
(NSG 311, Junior nursing standing)
Builds on Alterations in Adult Health I, using critical thinking and nursing process in a team-based learning format, paired with clinical application, to explore holistic nursing care of adults with acute and chronic health problems.

NSG-320 (formerly 393D) Child and Adolescent Health (2.5-1.5) 4
(NSG 311, NSG 376, Junior nursing standing)
Human response to alterations in health, developmental needs, and family-centered care specific to pediatric population with emphasis on the professional nursing role, evidence-based reasoning, therapeutic communications, and caring.

NSG-360 (formerly 393E) Ethics and Health Care Policy (3-0) 3
(ENGL 102, Junior nursing standing)
Ethical decision-making in health care situations across the lifespan, including palliative and end of life care. Health care policy, legal, and regulatory issues are discussed. Emphasizes professional writing skills.

NSG-376 Clinical Nursing Pharmacology (3-0) 3
(NSG 212, Junior nursing standing)
Principle of pharmacology emphasizing nursing role in accurate drug administration and patient assessment. Pharmacological management is analyzed with Pathophysiology. Particular emphasis is on patient/family teaching of pharmacological goals in order to maximize health potential.

NSG-411 Nursing in Complex Community Systems (3,4)7
(Senior nursing standing)
Comprehensive theoretical introduction to community health nursing paired with clinical experiences focused on promoting health and preventing disease in multiple populations. Culminates in a Capstone project that addresses an identified community health need.

NSG-412 Leadership in Complex Systems (2,5)7
(Senior nursing standing)
Focuses on the development of leadership and management skills necessary for professional nursing practice and interventions supporting multiple patients in acute-care complex systems. Classroom experiences paired with 200 hours of precepted leadership experience.

NSG-450 Alterations in Mental Health (2.5, 1.5) 4
(During last semester of the BSN program, Senior nursing standing)
Theory and practice of professional nursing in response to complex alterations in psychosocial function and their impact on individuals, families, and communities. Classroom and clinical experiences.

NSG-460 Care of the Critically Ill Patient (3,1) 4
(Senior nursing standing)
Focuses on the professional nursing role in supporting individuals and families experiencing complex physiological alterations in health. Paired with clinical experiences supporting individuals and families in critical care settings.

NSG-486 NCLEX Review (1-0) 1
(Senior nursing standing)
Focuses on achievement of professional success by preparing for RN licensure. Preparation for NCLEX will be the focus of this course by enhancing NCLEX testing skills.

Philosophy (PHIL)

PHIL 140 Historical Introduction to Philosophy (3-0)3
An introductory survey of the major philosophers and philosophical movements from ancient times to the present.

PHIL 170 Introduction to Critical Reasoning (3-0)3
An elementary study of critical thinking and reasoning. For students who want to improve their skills in recognizing fallacious patterns of reasoning, constructing acceptable arguments, and criticizing faulty lines of reasoning.

Physical Education (PE)

PE 100 Lifetime Activities (0-2)1
Health and physical education concepts include carry over skills and techniques in a broad and varied list of elective activities. May be repeated to maximum of six hours.

PE 104 Intermediate Basketball (0-2)1 F
Introduction to intermediate knowledge and skills in basketball.

PE 110 Military Physical Conditioning 1
Students participate in and learn to lead a physical fitness program. Emphasis is on the development of an individual fitness program and the role of exercise and fitness in one's life. Leadership positions are tailored based on the student's academic alignment.

PE 130 Flag Football (0-2)1 S
Introduction to beginning knowledge and skills in flag football.

PE 157 Slow Pitch Softball (0-2)1 F
Introduction to beginning knowledge and skills in slow pitch softball.

PE 159 Soccer (0-2)1 S
Introduction to beginning knowledge and skills in soccer.

PE 161 Tennis (0-2)1 S
Introduction to basic knowledge and skills for people who are familiar with tennis.

PE 164 Weight Training (0-2)1
Introduction to beginning knowledge and skills in weight training.

PE 165 Conditioning (0-2)1
Introduction to beginning knowledge and skills in conditioning.

PE 170 Volleyball (0-2)1 S
Introduction to beginning knowledge and skills in volleyball.

PE 173 Beginning Swimming (0-2)1
Introduction to beginning knowledge and skills in swimming.

PE 174 Intermediate Swimming (0-2)1
Introduction to intermediate knowledge and skills in swimming.

PE 175 Lifeguard Training (0-4)2
Red Cross certification for lifeguards.

PE 176 Advanced Swimming (0-2)1
Introduction to advanced knowledge and skills in swimming.

PE 179 Orientation to Scuba (0-2)1
Introduction to beginning knowledge and skills in scuba diving.

PE 187 Golf (0-2)1 F
The course is designed to introduce students to the rules, skills, and strategies involved in golf.

Physical Education/Teaching (PET)

PET 124 Human Body: Structure and Function (2-0)2 F
Overview of the structure and function of the organ systems in the human body. Topics covered include the skeletal, muscular, nervous, digestive, respiratory, and cardiovascular systems.

PET 125 Human Movement (2 0)2 S
(PET 124)
This course is designed to introduce prospective physical educators to the principles of human movement. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

PET 175 Motor Development (3-0)3 S
To examine changes in human movement behavior across the lifespan and the factors that contribute to those changes.

PET-324 Water Safety Instructorships (0-4)2
(Senior Lifesaving Certification)
Teaching methods in swimming and water safety. Meet American Red Cross certification standards. Course completion carries eligibility for teaching swimming, lifesaving, and water safety.

Physical Science (PHSC)

PHSC 105 Introductory Physical Science 1 (3-3)4
(MATH 124)
Current theories and concepts of physical science; fundamental laws and concepts of physics, chemistry, astronomy, and geology.

PHSC 106 Introductory Physical Science 2 (3-3)4
(PHSC 105)
Continuation of PHSC-105.

PHSC 311 Astronomy (3-0)3 F
(MATH 124)
Current theories and concepts of astronomy; structure and composition of the solar system; formation, structure, and evolution of stars; structure, composition, and motion of the Milky Way and other galaxies; structure and evolution of the universe.

Physics (PHYS)

PHYS 101 Introductory Physics 4 F
(High school trigonometry and MATH 126. § MATH 128)
The fundamental philosophy and principles of physics are applied to studies of mechanics, sound, heat, and thermodynamics through demonstrations, problems and experiments. Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

PHYS 102 Introductory Physics 4 S
(PHYS 101 and MATH 128)
The fundamental philosophy and principles of physics are applied to studies of electricity, magnetism, optics, light, and atomic and nuclear physics through demonstrations, problems and experiments Pre-requisite(s) and/or co-requisite(s) may differ on regional campuses.

PHYS 111 General Physics 4 F
(Grade of "C" or better in MATH 155)
Survey of classical mechanics, thermodynamics, and waves.

PHYS 112 General Physics 4 S
(PHYS 111)
Survey of electricity, magnetism, and optics.

PHYS 221 Introduction to Photography 3
This course will provide an introduction to the basic principles and techniques of photography. Laboratory experience will develop skills working with monochrome materials.

PHYS 293 Special Topics 1-6 hr.
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

PHYS 314 Introductory Modern Physics 4
(PHYS 112 and MATH 156)
Topics of modern physics of interest to science majors and engineers; atomic and molecular structure and spectra, solid state and nuclear physics, relativity, and elementary particles.

PHYS 493 Special Topics 1-6 hr.
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

Political Science (POLS)

POLS 102 Introduction to American Government (3-0)3 F
General survey of American national government and politics.

POLS 103 Global Political Issues (3-0)3
Analysis of issues in post-cold war international politics, ranging from traditional major power diplomacy and intervention to the newer problems of economic interdependence and development, human rights, population pressures on limited resources, and the environment.

POLS 220 State and Local Government (3-0)3 S
Origins, background, comparisons, and contrasts of state governments; state and federal relations; state executive, legislative, and judicial branches; state services; county and municipal governments.

POLS 239 Introduction to Non-Profit Organization (3-0)3
An examination of the broad institutional and organizational components of non-profit organizations.

POLS 260 Introduction to International Relations (3-0)3 S
Theories and concepts in international politics and their application to contemporary world politics.

POLS 293 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

POLS 311 Political Parties and Elections (3-0)3
Parties and elections in America; emphasis on nomination and general election processes, campaigns, the mass media, campaign finance, voting, the electoral college, and parties in government.

POLS 313 American Constitutional Law (3-0)3 F
The role of the Constitution in the American political system. Topics include the political concept of constitutionalism; the role of the Supreme Court in the political process; division of powers among the three branches of government; and the constitutional relation between the national government and the states.

POLS 319 Comparative Government (3-0)3 F
Comparison of governmental systems in Europe, Asia, Latin America, and Africa. Select countries in each region will be studied with regard to their political institutions and socioeconomic systems.

POLS 400 Terrorism and National Security (3-0)3 S
(POLS 102)
Basic overview of terrorism tactics and national security initiatives.

POLS 480 Seminar in Non-Profit Administration (3-0)3
(Senior standing or department consent)
Special topics in the area of non-profit administration and current problems.

POLS 495 Independent Study 1-6
(Department consent)
Faculty supervised study of topics not available through regular course offerings.

Psychology (PSYC)

PSYC 101 Introduction to Psychology (3-0)3
A survey of general psychology.

PSYC 201 Psychology as a Profession (1-0)1 S
(PSYC 101)
Orientation to opportunities for experience, employment, and graduate and professional training in psychology.

PSYC 202 Research Methods in Psychology (3-0)3 F-Even
(PSYC 101 & STAT 211 or ECON 225)
Research methods in experimental, developmental, clinical, and community-social psychology in the laboratory and the natural environment.

PSYC 241 Introduction to Human Development (3-0)3 S
(PSYC 101)
Survey of human psychological development across the life span with emphasis on change in biological, cognitive, and social-emotional processes. Special attention given to theoretical, conceptual, methodological, and practical issues.

PSYC 251 Introduction to Social Psychology (3-0)3
(PSYC 101)
Examination of social interaction and behavior from a psychological perspective. Topics include: attraction, social perception and cognition, attitudes and attitude change, social influence and group process, prosocial behavior and aggression, cultural influence, and prejudice.

PSYC 281 Introduction to Abnormal Psychology (3-0)3
(PSYC 101)
Introduction to major categories of behavior disorders; etiology, prevention and treatment.

PSYC 293 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

PSYC 301 Biological Foundations of Behavior (3-0)3
(PSYC 101 & PSYC 202)
Introduction to animal behavior. Survey of fundamental concepts (evolution, genetics, adaptation, and learning) and research methods in understanding animal behavior including primate species. Includes laboratory exercises and demonstrations.

PSYC 302 Behavior Principles (3-1)4 S-Even
(PSYC 101 & PSYC 202)
Principles of behavior and learning and the significance of these principles for psychological theory and application; laboratory exercises and demonstrations.

PSYC 331 History and Systems of Psychology (3-0)3
(PSYC 202 or PSYC 241 or PSYC 251 or PSYC 293 and junior or senior standing)
A survey of psychology from its origins in philosophy, biology, and physics through the early major schools of psychological thought to modern perspectives on the science of behavior and its applications to human affairs.

PSYC 343 Child and Adolescent Development (3-0)3
(PSYC 241 and junior or senior standing)
Theory and research on major psychological processes in childhood and adolescence; maturation, personality, socialization, sensory, and cognitive development.

PSYC 351 Topics in Social Psychology (3-0)3
Social factors that determine human behavior, survey of research in selected areas of social psychology and their implications for social phenomena.

PSYC-362 Psychological Assessment (3-0)3
(PSYC 202 or PSYC 241 or PSYC 293 and junior or senior standing)
Psychometric theory and development of psychological assessment instruments. Includes behavioral, personality, intellectual, neuropsychological, forensic, achievement, and aptitude assessment.

PSYC-363 Personality Theory (3-0)3
(PSYC 202 or PSYC 241 or PSYC 293 and junior or senior standing)
Theoretical and empirical readings in a survey of major perspectives in personality theory, including dynamic, cognitive, humanistic, and behavioral.

PSYC-382 Exceptional Children (3-0)3
(PSYC 241 and junior or senior standing)
Exceptional mental retardation or advancement; organic disabilities having behavioral consequences, such as cerebral palsy or deafness; and behavior disorders.

PSYC 401 Psychology Capstone Experience (1-0)1 S
(PSYC 101, PSYC 201, STAT 211 & senior standing)
Experience in coursework, research, or service that integrates knowledge gained as a major in psychology. To be taken concurrently with capstone experience, details of which are to be determined in consultation with advisor.

PSYC 423 Cognition and Memory (3-0)3
(PSYC 202 and junior or senior standing)
Theoretical and empirical issues in cognitive psychology. Topics include mechanisms and theories of attention, memory, language, and conceptual processes.

PSYC 424 Learning and Behavior Theory (3-0)3 F
(PSYC 302 and junior or senior standing)
Advanced course in empirical and theoretical issues in the psychology of learning.

PSYC 474 Behavior Modification (3-0)3
(PSYC 302 and junior or senior standing)
Basic principles of behavior and their application to changing significant human behavior. Includes clinical, educational, parenting, industrial/organizational, community, and other applications.

PSYC 491 Professional Field Experience 1-18
(Department consent; may be repeated up to a maximum of 18 hours)
Prearranged experimental learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

PSYC 493 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

PSYC 493V Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

PSYC 495 Independent Study 1-6
(Department consent)
Faculty supervised study of topics not available through regularly scheduled courses.

Sociology and Anthropology (SOCA)

SOCA 101 Introduction to Sociology (3-0)3
Basic course intended to develop a perspective about the nature of social processes and the structure of society.

SOCA 105 Introduction to Anthropology (3-0)3 F
Essentials of human evolution and prehistory with a concentration on the varieties of languages and cultures found among peoples of the world.

SOCA 207 Social Problems-Contemporary America (3-0)3 F-Odd
Causes of social disorganization in modern society and social life. Emphasis on research findings derived from studies of contemporary American society.

SOCA 221 Families and Society (3-0)3 S
Historical comparative approach to changing structure and functions of the family institution. Effect of economic, demographic, and cultural changes on relationships, gender roles, marriage, childcare; variations by socioeconomic status, race, ethnicity, gender, and sexual orientation.

SOCA 232 Criminology (3-0)3 S
Exploration of various theories of criminal behavior; emphasis on a critical study of the criminal justice system and efforts to reform the penal system.

SOCA 235 Race Relations (3-0)3 S
Causes and consequences of prejudice and discriminatory practices involving minority group members. Emphasis is on blacks, but social and economic conditions of Indians and other racial and religious minorities are also discussed.

SOCA 302 Deviant Behavior (3-0)3 F-Odd
(6 Hrs. SOCA classes or department consent)
Examination of the processes by which "deviance" is defined in society, and the methods of social control attempted. Provides a critical understanding of society from the perspective of those defined as "outsiders" - criminals, addicts, etc.

SOCA 305 Social Stratification and Power in American Society (3-0)3 F-Even
(SOCA 101)
The course focuses on patterns of wealth, prestige, and power in American society. The contemporary configuration of class will be analyzed in the light of historical patterns, as well as future developments. The impact of class status on the individual and psychological patterns of class behavior will be studied. Philosophic arguments regarding the ethics of inequality will be considered.

SOCA 311 Social Research Methods (3-0)3 F
(Junior status)
Logic of social research, elements of research design, and problems of measurement, with emphasis on survey research methodology and data analysis.

SOCA 312 Death and Dying (3-0)3
This course explains the issues and problems associated with death in American society. Topics such as changing attitudes, grief, funeral practices, life after death, the dying patient, and widowhood are presented from a variety of perspectives.

SOCA 325 Illness and Health Care (3-0)3 F
An overview of behavioral factors relating to occurrence of and response to illness, with particular emphasis upon American medicine. Designed especially for students interested in health-related careers.

SOCA 327 Appalachian Culture (3-0)3 S-Odd
Overview of Appalachian culture and development from settlement to the present. The course draws on the folk culture, culture of poverty, regional development, and colonial models to offer perspectives on Appalachian cultural diversity, problems, power relationships, and development.

SOCA 333 Sociology of Work and Work Places (3-0)3 S Odd
(SOCA 101)
Explores the significance of work and work relations in contemporary society. Emphasis is given to the analysis of employment settings including industrial organizations.

SOCA 360 Women and Men in Society (3-0)3 F
(SOCA 101)
Sociological study of gender stratification. Emphasis on social, structural, historical, cultural bases of gender relations. Structured around issues of theoretical debate and research interest concerning U.S. gender system. Includes cross-cultural and international comparisons.

SOCA 430 World Religions (3-0)3 S Even
Study of the major religious traditions of the world. Through specialized lectures, speakers, assigned readings, field trips, and occasional videos students will gain a broad basis knowledge of the major religions.

SOCA 493 Special Topics (1-6-0)1-6
Investigation of topics not covered in regularly scheduled courses.

SOCA 495 Independent Study 1-6
Faculty supervised study of topics not available through regular course offerings.

SOCA 497 Research 1-6
(Department consent)
Independent research projects.

Spanish (SPAN)

SPAN 101 Elementary Spanish 1 (3-0)3 F/S
(Score of S1 on placement test or no prior study of the language) (Course presumes students have no prior knowledge of the language.)
Introduction to the sound and writing systems of the language with emphasis on listening, speaking, reading and writing within an authentic cultural context.

SPAN 102 Elementary Spanish 2 (3-0)3 S
(SPAN 101 or score of S2 on placement exam)
Continuation of SPAN 101. Introduction to the sound and writing systems of the language with emphasis on listening, speaking, reading, and writing within an authentic cultural context.

SPAN 203 Intermediate Spanish 1 (3-0)3 F
(SPAN 102 or score of S3 on placement exam)
Continuation of SPAN 102

SPAN 204 Intermediate Spanish 2 (3-0)3 S
(SPAN 203 or score of S4 on placement exam)
Foundation for advanced study of Spanish. Emphasis on oral and written communication.

SPAN 331 Early Spanish American Literature (3-0)3
Readings in Spanish American Literature from the colonial period to modernism.

SPAN 495 Independent Study. 1-6 Hours
Faculty supervised study of topics not available through regular course offerings.

Speech Pathology and Audiology (SPA)

SPA 270 Effective Public Speaking (3-0)3
Designed for improvement of the student's speech based upon theory and demonstrated performance of voice and diction skills and public-speaking skills for effective communication in a variety of speaking situations.

SPA-460 Professional Writing/Speaking (3-0) 3
(For majors only)
(ENGL 101 and ENGL 102 and SPA 270) or consent.
Designed for improvement of students' professional skills, specifically oral and written. Emphasis is placed on report writing, letter writing, resume writing, listening, interviewing, group problem solving, leadership, persuasion, and public speaking.

Sport and Exercise Psychology (SEP)

SEP 271 Sport in American Society (3-0)3 F
Socio-cultural investigation of sport in American society.

SEP 272 Psychological Perspectives of Sport (3-0)3 S
An examination of personality and behavioral factors as they affect participation in sport. Topics such as stress and sport, body image, aggression and the sport participant, and the licensure of sport psychologists highlight the course.

Sport Management (SM)

SM 167 Introduction to Sport Studies (3-0)3 F

Overview of the sport management profession including career opportunities, critical current issues/trends, professional standards and the professional organizations.

SM 275 The Olympic Games (3-0)3 S-Odd
An examination of the historical development of the Olympic Games from the Greek classic period (500 B.C.) to the games of the XXVI Olympiad of Atlanta in 1996.

SM 340 Sport Governance (3-0)3 F
This course examines how sport organizations interact and coordinate with numerous policy actors to facilitate and coordinate the mechanisms of governance.

SM 345 Technology in Sport Management (2-0) 2 S
This course provides an understanding of the technological concepts and principles relevant to sport management and provides student with practical experiences in the use of emerging technologies in the field.

SM 350 Leadership in Sport Management (2-0)2 S
The purpose of this course is to identify the fundamental leadership behaviors in sport management. This course provides sport management students the opportunity to explore current leadership theories and practices in sport.

SM 355 Orientation in Sport Management (1-0)1 S
In this course students will identify and develop the skill sets necessary for successful completion of an internship in sport management.

SM 370 Sport Finance (3-0)3 F
This course will present a number of basic concepts in the budgeting and financing of sports programs and will also examine a number of critical financial issues affecting sports. Particular emphasis will be placed on intercollegiate athletic programs.

SM 375 Sport in the Global Market (3-0)3 F
An examination of the role of sports within the broader process of globalization. Its impact on culture, politics, economics and how these influences shape today's sport.

SM 380 History and Philosophy of Sport (3-0)3 S
This course is designed to acquaint students with philosophical issues related to sport and sport management and with individuals and events that helped shape the history of sport.

SM 385 Sport Economics (3-0)3 S
Provides an understanding of the economic concepts and principles relevant to the sport industry. Provides the opportunity to apply the concepts and principles in a practical manner within a variety of different sport settings.

SM 425 Facility Planning (3-0)3 F
(Department consent)
An in-depth study of sport facilities, including planning, design, liability and facility management concepts and evaluation.

SM 426 Liability in Sport (3-0)3 F
An overview of the legal system as it applies to sport, including contracts, tort law, drug testing, rights of athletes, product liability, legal duties of coaches, facilities supervisors, and athletic directors.

SM 485 Sport Management (3-0)3 F
(Senior standing)
The study of management principles as they relate to sport organizations. The analysis includes specific references to planning, organizing, leading, and evaluating functions of management in sport.

SM 486 Sport Marketing (3-0)3 S
(Senior standing)
The study of marketing principles as they relate to sport organizations. Specific attention is focused on the marketing planning process, marketing information systems, and internal marketing.

SM 487 Issues in Sport Studies (3-0)3 S
(SEP 271, ENGL 101, ENGL 102 & junior standing)
An in-depth analysis of critical issues impacting sport and the sport industry.

SM 491 Internship Project 1-18 S
(SM majors only and department consent)
(May be repeated up to a maximum of 18 hours.)
Prearranged experiential learning program, to be planned, supervised, and evaluated for credit by faculty and field supervisors. Involves temporary placement with public or private enterprise for professional competence development.

SM 493 A-Z Special Topics (1-6-0)1-6
(Department consent)
Investigation of topics not covered in regularly scheduled courses.

Statistics (STAT)

STAT 211 Elementary Statistical Inference (3-0)3
(Grade of "C" or better in MATH 123 or MATH 126A or MATH 126B)
Basic concepts of descriptive and inferential statistics: descriptive measures, random variables, sampling distributions, estimation, tests of hypotheses, chi-square tests, regression, and correlation.

Theatre (THET)

THET-300 Practicum 1-3 Hrs. F/S
Participation in scheduled theatre productions. May be repeated up to a maximum of 6 Hr

THET-314 Theatre Production and Design (3-0)3
Production and design fundamentals for the performing arts including conceptualization, fabrication and maintenance of scenery, costumes, lighting and sound. Includes introduction to stage design and its translation into realized production.

Women's Studies (WMST)

WMST-225 Women of Appalachia (3-0) 3 S Odd
Use variety of sources to explore how race, class, ethnicity, sex and gender impact lives of diverse Appalachian women, including portrayal of women, stereotypes, impact of stereotypes, and how women construct their own identities.

West Virginia University (WVUE)

WVUE-191 First Year Seminar (1-0)1 F
Support the first-year student to make a successful transition from high school to college; develop a better understanding of the learning process including critical thinking; and acquire basic academic and personal "survival skills."

Faculty

College of Business, Humanities, and Social Sciences

Alley, Rachael, Ed.D.
Marshall University
Teaching Assistant Professor of Sport Studies 2013
Amin, Mohammad Nurul, M.B.A., M.A., CPA, CMA, CFE, FCMA
University of Illinois, Champaign
Associate Professor and Interim Chair of Accounting/Finance and
Business Management 1994
Barko, Cortney C., Ph.D.
Northern Illinois University
Assistant Professor, Department of History, English, and Creative Arts 2011
Bragg, Rachel, M.A.
Mountain State University
Assistant Professor, Department of History, English and Creative Arts 2013
Brown, Stephen W., Ph.D.
West Virginia University
Dean of the College of Business, Humanities and Social Sciences and
Professor of History 1973
Douglas, Barbara D., M.S.N.
Wright State University
Senior Lecturer, Department of Nursing 1996
Elmore, Sandra J., Ed.D.
West Virginia University
Professor and Chair, Department of Sports Studies 1989
Fink, Lambert, Peggy, A., Ph.D.
West Virginia University
Assistant Professor, Department of Nursing 1998
Fixx, Darrell, M.B.A.
West Virginia Graduate College
Visiting Assistant Professor of Management 2012
Hall, Cynthia A, Ph.D.
University of Alabama, Birmingham
Assistant Professor, Department of Psychology 2011
Harris, Mindy L., M.S.N.
Marshall University
Senior Lecturer, Department of Nursing 1998
Janeksela, Galan, Ph.D.
Iowa State University
Professor, Department of Social Sciences and Public Administration 2003
Jones, Mark, M.S.
Indiana State University
Teaching Assistant Professor, Department of Sport Studies 2006
Kent, Andrea, Ph.D.
University of Illinois, Urbana-Champaign
Assistant Professor, Department of Social Sciences and Public Administration .. 2013
Kihn, Patricia L., Ph.D.
Wayne State University
Professor and Chair, Department of History, English and Creative Arts..... 1991
Klocke, Evelyn, M.S.N., Ed.D.

Marshall University
Assistant Professor and Chair, Department of Nursing..... 1995
Lieving, Gregory, Ph.D.
West Virginia University
Associate Professor and Chair, Department of Psychology 2006
Lovett, Paul, M.S.
West Virginia University
Teaching Assistant Professor of Career-Technical Education..... 2012
Maus, Martha, Ph.D.
University of Maryland, College Park
Assistant Professor, Dept. of History, English & Creative Arts..... 2011
McGraw, Thomas, ,M.H.A.
Xavier University
Assistant Professor, Department of Social Sciences and Public Administration .. 2008
Messer, James, MSN
University of Phoenix
Senior Lecturer, Department of Nursing 2007
Mitrik, Robert M., Jr., D.A.
Idaho State University
Assistant Professor, Dept. of History, English & Creative Arts..... 2010
Rakes, Paul H., Ph.D.
West Virginia University
Professor, Dept. of History, English & Creative Arts 2002
Rezek, Janis, Ph.D.
Union Institute & University
Associate Professor & Chair, Dept. of Social Sciences & Public Administration .. 2000
Robbins, Frank, B.A.
Bluefield State College
Interim Program Coordinator of RBA/Aviation Management 2013
Russell, Angelia M., M.B.A.
Marshall University
Associate Professor, Department of Management 1975
Sarin, Madhuri, M.A., M.B.A., CMA, CFM, CFE, EA
Marshall University
Associate Professor, Department of Accounting & Finance 1988
Sartore, Melissa Ann, Ph.D.
University of Wisconsin-Madison
Assistant Professor, Dept. of History, English & Creative Arts..... 2011
Shaw, Amy, M.S.N.
Marshall University
Senior Lecturer, Department of Nursing 2006
Smith, Reginald, M.S.
West Virginia University
Lecturer, Department of Sport Studies..... 2002
Spence, Daniel, MAT
Georgia College
Lecturer, Department of Sport Studies and Assistant Athletic Training 2012
Spencer, Robin, M.S.N.
Marshall University
Senior Lecturer, Department of Nursing 2007
Stoecklin, Melinda, M.S.N.
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Lecturer, Department of Nursing 2006

Stretton, David, Ph.D.
Ohio University
Assistant Professor, Department of Accounting 2014
Tuckwiller, Brenda, Ed.S.
Marshall University
Teaching Associate Professor and Chair of Department of
Career-Technical Education 2006
Wheeler, Andrew, M.F.S.
The George Washington University
Associate Professor of Forensic Sciences 2012
Whelan, Melanie, Ph.D.
West Virginia University
Senior Lecturer, Department of Nursing 2003
Williams, Robert F., M.S.
U.S. Sports Academy
Lecturer, Dept. of Sport Studies and Head Men's Basketball Coach 2002
Wilson, Mark, D.A.
Middle Tennessee State University
Professor,Dept. of Social Sciences and Public Administration..... 2007
Yocke, Richard J., M.S.
Marshall University
Teaching Associate Professor, Department of Career-Technical Education..... 1993
Yost, David M, Ed.D.
Walden University
Teaching Assistant Professor, Department of Career-Technical Education 2011

Leonard C. Nelson College of Engineering and Sciences

Al-Nasra, Moayyad, Ph.D.
Old Dominion University
Associate Professor and Chair,
Department of Engineering Technology 2009
Barton, Susan M., Ph.D.
Cornell University
Professor, Department of Mathematics..... 1994
Bettig, Bernhard P., Ph.D.
Arizona State University
Associate Professor, Department of Mechanical Engineering 2006
Beutler, Deborah, Ph.D.
Washington State University
Professor, Department of Biology 2000
Carlson, George T., Ph.D.
University of South Carolina
Professor, Department of Physical Sciences 1988
Cavalier, John F., Ph.D.
Virginia Polytechnic Institute and State University
Professor, Department of Mathematics..... 1969
Chun, Deborah, Ph.D.
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El-Rifai, Hasan, Ph.D.
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Associate Professor, Department of Physical Sciences 2007
Eslami, Yadollah, Ph.D.
University of Toronto
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Ferrara, Lisa A., Ph.D.
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Professor and Chair, Department of Biology 1989
Fox, Michael, M.S.
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Visiting Instructor, Department of Chemistry and Physics 1973
Fu, Winnie, Ph.D.
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Hird, John Thomas, Jr., Ph.D.
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Associate Professor, Department of Physical Sciences 1996
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Leftwich, Steven D., Ph.D., P.E., P.S.
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Professor and Chair, Department of Civil Engineering 1987
Lu, Mingyu, Ph.D.
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Minnick, Michael V., Ph.D.
Clemson University
Professor, Department of Chemical Engineering 1987
Mohammed, Amr, Ph.D.
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Naz, Afrin, Ph.D.
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Neary, John, Ph.D.
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Assistant Professor, Department of Biology 2012
Osei-Prempeh, Gifty, Ph.D.
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Puttaiah, Govindappa, Ph.D., P.E.
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Smith, Don J., M.S., M.A.
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Song, Houbing, Ph.D.
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Squire, Richard, Ph.D.
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Professor, Department of Physical Sciences 2006
Steranka, Paul O., Jr.,D.Eng., P.E.
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Professor of Mechanical Engineering
Associate Dean, Leonard C. Nelson College of Engineering and Sciences 1992
Thomas, Garth D., Jr., M.S., P.E.
West Virginia University
Associate Professor, Department of Chemical Engineering 1982
Torbica, Zeljko, Ph.D.
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Professor of Civil Engineering
Dean, Leonard C. Nelson College of Engineering and Sciences 2012
Wang, Nan, Ph.D.
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Associate Professor, Department of Electrical and Computer Engineering 2008
Wellstead, Carl, Ph.D.
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Associate Professor, Department of Biology 1990
Williamson, Matthew, Ph.D.
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Assistant Professor,
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Yang, Bing, Ph.D.
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Professor and Chair, Department of Mathematics 1991
Yang, Chengmin, Ph.D.,
Colorado State University
Professor, Department of Mathematics..... 1992
Yang, Horng-Jyh, Ph.D., P.E.
University of Nevada, Reno
Assistant Professor, Department of Civil Engineering 2011
Zabihian, Farshid, Ph.D.
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Assistant Professor, Department of Mechanical Engineering 2011

Emeriti Faculty

Alexander, Ronald R., Ph.D.
Professor Emeritus of History 1966-2003
Bailey, Kenneth, Ph.D.
Professor Emeritus of Geography and
Dean of College of Business, Humanities & Sciences 1972-2000
Bell, Thomas, M.A.
Professor Emeritus of Economics/Social Sciences 1975-2002
Bitzer, Jr., Wesley, E.M.
Assistant Professor Emeritus of Mining Engineering Technology.....1982-1991
Blevins, James R., M.S.
Professor Emeritus of Drafting and Design.....1976-2002
Bloome, Carlyle W., M.C.E., R.L.S.
Professor Emeritus of Engineering Technology 1976-1996
Bradford, Richard, Ph.D.
Professor Emeritus of History.....1968-2002
Brannon, Donald G., Ph.D.
Professor Emeritus of Chemistry 1967-1996
Cardea, Eva Kay, M.A.
Assistant Professor Emeritus of English 1966-1996
Carrier, John P., Ph.D.
President Emeritus 1992-1998
Clark, William,
Associate Professor Emeritus of Computer Science.....1980-2011
Clonch, Daniel M., M.S.E., P.E.
Professor Emeritus of Electrical & Electronic Engineering Technology 1961-1992
Cobb, Charles H., M.S.
Professor Emeritus of Physical Education 1957-1992
Cook, James, M.S.
Associate Professor Emeritus 1980-2002
Crist, Barbara, Ed.D.
Associate Professor Emeritus of Computer Science 1975-2011
Crum, Edward H., Ph.D.

Professor Emeritus of Chemical Engineering 1975-1996
David, John P., Ph.D.
Professor Emeritus of Economics 1971-2012
Dodson, Patricia, M.S.
Professor Emeritus of Office Administration 1983-1996
Doner, David, Ph.D.
Professor Emeritus of Chemical Engineering.....1984-2011
Doumaux, Patricia, Ph.D.
Professor Emeritus of Chemistry 1967-1996
Durrett, Gary, M.S.
Professor Emeritus of Computer Science 1966-2002
Ellis, Thearn H., M.S.
Professor Emeritus of Industrial Technology 1981-2002
Farooq, M.U., Ph.D.
Professor Emeritus of Electrical Engineering..... 1990-2007
Frye, Billy W., M.A.
Professor Emeritus of Industrial Technology 1960-1996
Gaertner, Ronald A., Ph.D.
Professor Emeritus of Biology 1970-2000
Gillespie, Robert, Ph.D.
Professor Emeritus of Electrical Engineering.....1965-2004
Gourley, Jr., Frank A., Ph.D.
Professor Emeritus of Engineering Technology & Industrial Technology ...1990-2006
Heal, James, Ph.D.
Professor Emeritus of Safety Education 1965-1989
Honey, Keith R., Ph.D.
Professor Emeritus of Physics 1976-2006
Illman, Barry, Ph.D.
Professor Emeritus of Physics 1982-2003
Jennings, Jean K., M.A.
Professor Emeritus of English.....1967-1987
Johnson, Ronald L., Ph.D.
Professor Emeritus of Sociology 1972-1996
Kiley, G. Bertram, Ph.D.
Professor Emeritus of English.....1947-1976
Kuhn, Howard, Ph.D.
Professor Emeritus of English.....1972-2001
Kurland, Dorothy, Ph.D.
Professor Emeritus of Chemistry 1980-2001
Kwei, Man Wei, Ph.D.
Professor Emeritus of Electrical Engineering.....1967-2000
Lauer, Norma, Ph.D.
Professor Emeritus of Mathematics 1976-2000
Lunsford, Harold D., B.E.S., P.E.
Assistant Professor Emeritus of Mechanical Engineering Technology 1984-1997
Mansour, Scott W., Ph.D.
Professor Emeritus of Mathematics 1973-2003
Marshburn, Robert A., M.S.
Professor Emeritus of Management & Computer Information Systems.....1973-2005
Martyn, Charles F., Mus.D.
Professor Emeritus of Music.....1967-1994
Meyer, W. Frederick, D.M.A.
Professor Emeritus of of Music 1972-2006

Miller, Elizabeth, M.S.
Associate Professor Emeritus of Health.....1968-2000
Moore, Edward A., M.B.A.
Associate Professor Emeritus of Accounting 1946-1985
Murthy, Krishna, Ph.D.
Professor Emeritus of Civil Engineering.....1977-2011
Myers, Robert L., Ph.D.
Professor Emeritus of Chemistry 1966-1996
Nelson, Leonard C., Ph.D.
President and Professor Emeritus of Mechanical Engineering.....1956-1986
Nunley, Howard, M.S., C.P.A.
Professor Emeritus of Accounting 1964-1994
Oxendale, James, Ph.D.
Professor Emeritus of Political Science 1976-2005
Oxendale, Lucia, M.S.
Associate Professor Emeritus of Department of Management
and Computer Information Systems 1985-2006
Parks, John, Ph.D.
Professor Emeritus of Biology 1968-2003
Perry, Jacqueline, Ph.D.
Professor Emeritus of Accounting 1998-2013
Piercy, James W., M.S.E., P.E.
Associate Professor Emeritus 1986-2002
Rice, Donald E., M.S.
Professor Emeritus of Chemistry 1961-1996
Riggio, Donald J., M.A.
Professor Emeritus of Music.....1960-1991
Russell, G. Mary Lou, M.A.
Assistant Professor Emeritus of Mathematics 1980-1989
St. Clair, Ruth, M.A.
Assistant Professor Emeritus of Mathematics 1954-1979
Sanger, Robert L., M.B.A.
Professor Emeritus of Management.....1958-1994
Schoonover, Walter B., M.A.
Professor Emeritus of Accounting 1955-1989
Shaaban, Mostafa, Ph.D.
Professor of Economics 1968-2007
Short, Gordon, Ed.D.
Professor Emeritus of Psychology & Dean of College of Arts & Sciences...1973-1997
Tabit, Beverly, M.A.
Assistant Professor Emeritus of English 1976-2006
Thornton, Stafford E., M.C.E., P.E., P.S.
Professor Emeritus of Civil Engineering 1964-2000
Tuholsky, Joseph, M.S.
Professor Emeritus of Engineering Technology 1973-2000
Urbanski, Joseph V., Ph.D.
Professor Emeritus of Mathematics 1989-2012
Wicks-Nelson, Rita, Ph.D.
Professor Emeritus of Psychology 1984-1998
Wilson, Alpha E., Ed.D.
Professor Emeritus of Physics 1983-1995
Wilson, Roderick W., M.S.
Professor Emeritus of Physics 1964-1998

Yu, Juin S., Ph.D.
Professor Emeritus of Mechanical Engineering 1968-2012