Undergraduate Academic Catalog 2005-2006

Undergraduate Catalog
2005-2006

Southern Polytechnic State University in the University System of Georgia

Lisa A. Rossbacher Ph.D, President

1100 South Marietta Parkway
Marietta, Georgia 30060-2896

Southern Polytechnic is a special-purpose institution in the University System of Georgia, with approximately 3800 students. We have a unique, statewide mission to offer bachelors' and masters' degrees and continuing professional development in science, engineering, technology, architecture, communication, and related fields. We focus on how to apply knowledge and to use technology to solve real world problems and contribute to Georgia's economic development. We attract outstanding students, whose entering SAT scores are among the three highest in the University System (along with Georgia Tech and the University of Georgia). Employers love hiring our graduates because they are well prepared for the workforce.

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Directory for Correspondence

For additional information on the following topics, please address inquiries as follows:

Admissions	Director of Admissions	Ms. Gini Head
Alumni Affairs	Director of Alumni Affairs	Mr. Jim Cooper
Athletics	Director of Athletics	Mr. Karl Staber
Career Services	Director of Career and Counseling	
Continuing Education Programs	Dean of Extended University	Ms. Dawn Ramsey
Cooperative Education Program	Director of Career and Counseling	
Counseling Services	Director of Career and Counseling	
Credit by Examination	Registrar	Mr. Steve Hamrick
Disability Services	Disability Services Coordinator	Mr. Jeff Orr
Financial Aid	Director of Financial Aid	Mr. Gary Bush
Fraternity Affairs	Dean of Students	Mr. Barry Birckhead
Health Services	Director of Wellness	Ms. Julie Scala
Joint Enrollment/General Studies Advising	Director of the ATTIC	Mr. Jeff Orr
International Program Services	Coordinator of International Services	Mr. Jeff Orr
Registration	Registrar	Mr. Steve Hamrick
Student Activities	Dean of Students	Mr. Barry Birchhead
Student Records	Registrar	Mr. Steve Hamrick
Testing Services	Coordinator of Testing	Mr. Jeff Orr
Transcripts	Registrar	Ms. Bennie Houck
Veteran Affairs	VA Coordinator	Mr. Steve Hamrick

For Your Information

Admissions	(678) 915-7281
Dean of Students	(678) 915-4102
Financial Aid	(678) 915-7290
President	(678) 915-7230
Registrar	(678) 915-7267
University Relations	(678) 915-7351
Vice President for Academic Affairs	(678) 915-7206
Vice President for Business and Finance	(678) 915-7232
Vice President for Student and Enrollment Services	(678) 915-3720
Continuing Education	(678) 915-7240

For additional phone numbers and contacts, click here: Campus Directory

From outside the Atlanta Metro area (For Admissions Information Only) 800-635-3204

Southern Polytechnic State University
1100 South Marietta Parkway
Marietta, Georgia 30060-2896

Mission Statement

Our mission at Southern Polytechnic State University is to provide the residents of Georgia with university level education in technology, engineering technology, arts and sciences, architecture, management, and related fields.

Our history continues to be one of rapid change and adaptation. Founded in 1948 as a unit of the Georgia Institute of Technology at the request of the Georgia Business and Industry Association, The Institute, as we were first called, provided technical training in support of Georgia industry. Our mission quickly evolved to include offering associate degrees. In 1970, as Southern Technical Institute, we became one of the first colleges in the nation to offer baccalaureate degrees in engineering technology. In 1980, we became a separate senior college in the University System of Georgia. Six years later, we began offering graduate programs and changed our name to Southern College of Technology. Meeting needs articulated by our professional advisory boards, alumni, faculty, and students, we continue to evolve, improve, and broaden our degree offerings in the technological arena. In 1996, the Board of Regents changed our name to Southern Polytechnic State University.

We produce academically and technically proficient graduates for the economic development of the state, region, and nation, and we seek international opportunities to participate in the teaching and transfer of technology.

To achieve our mission, we offer a flexible schedule of day and evening classes for programs at the associate, baccalaureate, and master's levels to the highly motivated students we seek to recruit and retain. We offer both degree and non-degree programs, provide opportunities for cooperative education, and engage in collaborative efforts with other institutions. We enroll a significant number of working professionals as part-time students, as well as a large number of traditional college-age students. We welcome academically prepared transfer students from community/junior colleges, technical institutes, senior colleges and universities, who are seeking a high quality technical education.

All of our programs include a strong general education course of study that integrates science, technology, and liberal arts. Our growing graduate programs introduce students to research that is industrially, technically, or applications focused.

The faculty strives for excellence in teaching and service, providing a laboratory-centered and/or professionally oriented education that fosters problem solving, ethical awareness, and a desire for lifelong learning.

At Southern Polytechnic State University, we encourage continual improvement throughout the campus and assume statewide leadership in the study and teaching of the process of continual improvement. We offer opportunities for professional development, and we work to achieve an international outlook.

We serve our community through partnerships with industry, professional organizations, government, schools, and through continuing education and public service programs. We promote activities that increase public awareness of science, technology and related fields.

In rising to the technological, scientific, and humanitarian challenges of the future, we aspire to broaden our offerings by including programs in engineering, in new and emerging sciences and technologies, and in additional technically related fields. We will enhance our reputation as a university where imagination, innovation, and application are integrated to provide leadership into the future.

Southern Polytechnic State University shares with the other colleges and universities of the University System of Georgia the following core characteristics or purposes:

- A supportive campus climate, necessary services, and leadership and development opportunities, all to educate the whole person and meet and needs of students, faculty and staff;
- Cultural ethnic, racial, and gender diversity in the faculty, staff, and student body, supported by practices and programs that embody the ideals of an open, democratic, and global society;
- Technology to advance educational purposes, including instructional technology, student support services, and distance education;
- Collaborative relationships with other System institutions, State agencies, local schools and technical institutes, and business and industry, sharing physical, human, information, and other resources to expand and enhance programs and services available to the citizens of Georgia.

Further, Southern Polytechnic State University shares with the other State Universities and Senior Colleges of the University System of Georgia the following core characteristics or purposes:

- A commitment to excellence and responsiveness within a scope of influence defined by the needs of an area of the state, and by particularly outstanding programs or distinctive characteristics that have a magnet effect throughout the region or state;
- A commitment to teaching/learning environment, both inside and outside the classroom, that sustains instructional excellence, serves a diverse and university-prepared student body, promotes high levels of student achievement, offers academic assistance, and provides developmental studies programs for a limited student cohort;
- A high quality general education program supporting a variety of disciplinary, interdisciplinary, and professional academic programming at the baccalaureate level, with selected master's and educational specialist degrees, and selected associate degree programs based on area need and/or inter-institutional collaborations;
- A commitment to public service, continuing education, technical assistance, and economic development activities that address the needs, improve the quality of life, and raise the education level within the university's scope of influence;
- A commitment to scholarly and creative work to enhance instructional effectiveness and to encourage faculty scholarly pursuits, and a commitment to applied research in selected areas of institutional strength and area need

Calendar

Fall 2005

Aug 16	Tues	Fall Kick-Off Day
Aug 18-19	Thurs/Fri	New Student Orientation
Aug 22	Mon	Classes Begin
Sep 5	Mon	Labor Day Holiday
Nov 23- 27	Wed - Sun	Thanksgiving Holiday for Students
Dec 8	Thurs	Last Day of Classes
Dec 9-14	Fri - Wed	Final Exams
Dec 17	Sat	Commencement

Spring 2006

Jan 4	Wed	New Graduate Student Orientation
Jan 5	Thurs	First Day of Classes
Jan 16	Mon	Martin Luther King, Jr. Holiday
Feb 28	Tues	Last Day to Withdraw from Classes
Mar 6 -11	Mon - Sat	Spring Break
Apr 27	Thurs	Last Day of Classes for Spring
Apr 28 – May 3	Fri - Wed	Final Exams
May 6	Sat	Commencement

Summer 2006

May 15	Mon	New Student Orientation
May 16	Tues	First Day of Classes
Jul 4	Tues	Holiday
Jul 25	Thurs	Last Day of Classes
Jul 26 – Aug 1	Wed. - Tues	Finals
Aug 5	Sat	Commencement

General Information

About This Catalog

The statements set forth in this catalog are for informational purposes only and should not be construed as the basis of a contract between a student and this institution.

While the provisions of this catalog will ordinarily be applied as stated, Southern Polytechnic State University reserves the right to change any provision listed in this catalog, including but not limited to academic requirements for graduation and various fees and charges without actual notice to individual students.

Every effort will be made to keep students advised of such changes. Information on changes will be available in the Office of the Registrar and major academic program offices. It is especially important to note that it is the responsibility of the student to keep apprised of current graduation requirements for a particular degree program and current academic procedures.

Southern Polytechnic State University is an equal educational and employment opportunity institution and does not discriminate on the basis of race, color, sex, religion, creed, national origin, sexual orientation, age, or disability.

Student Rules and Regulations

The rules and regulations for Southern Polytechnic State University students are comprised of the catalog sections on Academic Regulations and Student Life Regulations. These regulations are intended to set forth the requirements of the faculty to the end that a large student body may live and work together harmoniously with a minimum of friction and misunderstanding. Each student is expected to be familiar with these catalog sections. The student is also expected to be a law-abiding citizen and to obey the laws of the City of Marietta, Cobb County, the State of Georgia, and the United States.

Responsibility for Notices

Students are expected to be aware of the contents of all general notices including those appearing on official campus bulletin boards and in the official school newspaper. Students are also expected to keep the university apprised of their current mailing address and email address. All official notifications are issued by way of email.

University Police and Crime Statistics

Southern Polytechnic is committed to a safe, healthy environment in which our students, faculty, and staff can grow professionally and personally. The University promotes strong safety policies and prompt reporting and investigation of any actions or events that would harm the well-being of any student, employee, or faculty member.

The University Police employs police officers that comply with certification, training, and all other requirements of the Peace Officers Standards and Training Council of Georgia. Our officers have arrest powers on Southern Polytechnic property, which is under the control of the Board of Regents of the University System of Georgia, and on any public or private property within five hundreds yards of property under the control of the Board of Regents.

Our officers conduct preventive patrols on campus including the residence halls; are responsible for the security of university-owned property; investigate reported crimes at the university; conduct educational programs and workshops to promote personal safety; and actively work to prevent and detect crime throughout the Southern Polytechnic campus. **Our program complies with The Jeanne Clery Disclosure of Campus Security Policy and Crime Statistics Act. Our disclosure report can be found on the police department web page at http://police.spsu.edu.**

Accreditation

Southern Polytechnic State University is an accredited, coeducational, residential university offering associate, bachelor, and master's degrees.

Southern Polytechnic State University is **regionally accredited by the Commission on Colleges of the Southern Association of Colleges and Schools** (1866 Southern Lane, Decatur, GA 30033-4097, Telephone: 404-679-4501).

All Bachelor of Science degree programs in Engineering Technology are accredited by the Technology Accreditation Commission; ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, Telephone: 410-347-7700; email accreditation@abet.org, website: http://www.abet.org.

The National Architectural Accrediting Board, Inc. (NAAB) accredits the Bachelor of Architecture program. (www.naab.org)

The American Council for Construction Education (ACCE) accredits the Bachelor of Science program in Construction. (www.acce-hq.org)

The Association of Collegiate Business Schools and Programs (ACBSP) accredits the Master of Business Administration, B.S. in Management, B.A.S. in Management, and B.A. in Management

Programs of Study

Southern Polytechnic State University offers the following programs of study:

Associate of Science transfer program in General Studies

Bachelor of Applied Science

Bachelor of Architecture program

Bachelor of Arts programs in:
- Computer Science
- International Technical Communication
- Management
- Mathematics
- Physics

Bachelor of Science programs with majors in:
- Apparel/Textile Engineering Technology
- Biology
- Civil Engineering Technology
- Computer Engineering Technology
- Computer Science
- Construction
- Electrical Engineering Technology
- Industrial Engineering Technology
- International Studies: Global Technology
- Management
- Mathematics
- Mechanical Engineering Technology
- Physics
- Surveying and Mapping
- Technical and Professional Communication

Bachelor of Science in Information Technology

Bachelor of Science in Software Engineering

Bachelor of Science in Telecommunications Engineering Technology

Master of Business Administration (MBA)

Master of Science programs with majors in:
- Computer Science
- Construction
- Engineering Technology (Electrical Concentration)
- Quality Assurance
- Technical and Professional Communication

Master of Science in Information Technology

Master of Science in Software Engineering

Mater of Science in Systems Engineering

Certificates

In addition to the above degree programs, SPSU also offers certificates in the following areas:

Graduate
- Graduate Certificate in Software Engineering (CSE)
- Graduate Certificate in Quality Assurance (ETM)
- Graduate Transition Certificate in Computer Science (CSE)
- Graduate Transition Certificate in Information Technology (CSE)
- Graduate Certificate in Information Technology (CSE)
- Graduate Certificate in Technical Communication

Undergraduate
- Professional Certificate in Programming (CSE)
- Certificate in Apparel Product Development (ETM)
- Certificate in Quality Principles (ETM)
- Certificate in Production Design (ETM)
- Certificate in Logistics (ETM)
- Certificate in Engineering Sales (ETM)
- Certificate in Land Surveying (ACC)
- Professional Certificate in Project Management (Construction) (ACC)
- Professional Certificate in Development (Land) (ACC)
- Professional Certificate in Specialty Construction (ACC)
- Professional Spanish

Other certificates may be available. Check our web site for additional information.

Admissions Information

General Information
Admission to Southern Polytechnic State University is made without regard to race, nationality, sex, or religion. Admission to Southern Polytechnic State University is based on a number of factors depending upon your admissions type of entry and previous educational experience. The admission requirements for the University have been developed in accordance with the rules and regulations of the Board of Regents for the University System of Georgia.

Falsification
Approval for admission is valid only for the term specified at the time of acceptance and does not imply that approval will be granted for a term not specified. The University reserves the right to withdraw admission prior
to or following enrollment if the student becomes ineligible as determined by the standards of the University of the Board of Regents or if the student has falsified application materials.

Other Admission Requirements
SPSU reserves the right to require any applicant for admission to take appropriate standardized tests in order that the institution may have information bearing on the applicant's ability to pursue successfully the program of study for which the applicant wishes to enroll.

Special Students
Special students and all other students of classifications not covered in these policies shall be expected to meet all admission requirements prescribed by Southern Polytechnic State University.

Appeals
Formal appeals of the University's admission decision may be filed with SPSU's Director of Admissions. Contact the Office of Admissions for additional instructions on the appeal process.

Admission Procedures and Deadlines

General Information
All applications for admission to Southern Polytechnic State University must have all required credentials on file in the Admissions Office by the application deadline date for the semester in which the applicant plans to enroll.

The application deadline dates for each semester are as follows:

Semester	Deadline Date
Summer	May 1
Fall	August 1
Spring	December 1

All international applicants are required to submit all admissions documents to the Office of Admissions at least **three months before** the registration date of the semester in which the student plans to enroll.

Required Documents
Unless otherwise noted for a specific admission type/category, the application file is complete and ready for review when the Office of Admissions (Southern Polytechnic State University, 1100 South Marietta Parkway, Marietta, Georgia 30060-2896) has received the following:

- A completed Undergraduate Application for Admission to Southern Polytechnic State University
- A $20.00 non-refundable application processing fee (check made payable to Southern Polytechnic State University)
- Official scores on required college entrance tests (typically SAT or ACT. Some applicants may also be required to present TOEFL scores, or COMPASS scores)
- Official high school and college transcripts (mailed directly from those institutions)

- A valid Certificate of Immunization

Special Accommodations
Upon acceptance and before enrollment, any student with a documented disability or special need must notify the Disability Services Coordinator in the Advising, Tutoring, Testing, and International Center (ATTIC) of any particular accommodations required.

Admission from High School

The College Preparatory Curriculum (CPC), SAT/ACT scores, and the high school academic grade point average are all key factors considered in freshman admission decisions.

College Preparatory Curriculum
In order to be admitted, freshmen are required to complete the University System of Georgia's College Preparatory Curriculum requirements at either:

- A regionally accredited high school
- Or a University System recognized high school

A minimum of 16 CPC units are required in the following subject areas:

Course	Units	Required Course Emphasis
English	4	Literature (American, English, World) integrated with Grammar and Usage and Advanced Composition Skills
Mathematics	4	Algebra I and II, Geometry and a fourth year to include courses such as Advanced Algebra and Trigonometry, Algebra III, Pre-calculus, Discrete Mathematics , Calculus, AP Calculus, Statistics, IB Mathematics, Analysis
Science	3	Must include at least one lab course from Life Science and one lab course from the Physical Sciences
Social Science	3	Must include U.S. History and World History
Foreign Language	2	Must be in the same language and must emphasize speaking, listening, reading, and writing

* Two additional academic units are required, in addition to the above 16 units.

Regular Freshman Admission Standards (Full Admission)

Regular freshmen are applicants who are recent high school graduates and who will be attending college for the first time.

SPSU's minimum requirements for admission as a regular freshman include the following:

1. Graduation from
   - A regionally accredited high school
   - Or from a high school accredited by the Georgia Accreditation Commission
   - Or from a high school accredited by an approved University System of Georgia agency
   - Or from a public school under the authority of the State Department of Education

2. Completion of the 16 required CPC units, plus two additional academic units.

3. An academic High School GPA of at least a 2.5

1. Minimum scores on the ACT or SAT as follows:

Test	Minimum Score
SAT I Verbal	500
SAT I Math	500
ACT-English	21
ACT-Math	21

Limited Freshman Admission Standards

Limited Admissions
The University System permits SPSU to admit a limited number of traditional freshman each year who do not meet all the minimum requirements listed above, but whose records are sufficiently strong enough to show promise for success at the University.

SPSU's minimum requirements for limited freshman admission include the following:

1. Graduation from:
   - A regionally accredited high school
   - Or from a high school accredited by the Georgia Accreditation Commission
   - Or from a high school accredited by an approved University System of Georgia agency
   - Or from a public school under the authority of the State Department of Education

2. Completion of the 16 required CPC units

3. Have an academic High School GPA of at least a 2.5

4. Minimum scores on the SAT or ACT as follows:

Test	Minimum Score
SAT I Verbal	450
SAT I Math	450
ACT-English	18
ACT-Math	18

A freshman applicant may apply as early as the end of his or her junior year in high school. After the receipt of all required documents, (juniors should include their planned senior year subjects on their high school transcript), the Admissions Office will notify the applicant of his or her admission status.

Alternatives for Home Schooled Applicants and for Others

Applicants, including home schooled students, who have not graduated from an approved or accredited high school, may validate the CPC requirement in an alternative way. These students should submit a portfolio of high school level work that substantiates completion of college preparatory courses equivalent to those listed in the CPC table above. Please see the admissions office for further information about the portfolio.

Minimum SAT or ACT test scores for these students are (valid for admission during the 2005-2006 school year only):

Test	Score
SAT I – Verbal	500
SAT I – Math	500
SAT I – Total	1120
ACT English	21
ACT Math	21
ACT Composite	24

Joint Enrollment/Early Admission/The Accel Program

Southern Polytechnic State University recognizes the need to provide academically talented high school students with opportunities for acceleration of their formal academic programs. There are three programs available to talented students:

Joint Enrollment

A joint enrollment student continues his/her enrollment in high school as a junior or senior and enrolls in courses for college credit.

Early Admission

An early admission student enrolls as a full-time college student following completion of the junior year in high school.

The Accel Program

The Accel Program is a joint enrollment program that allows high school, typically juniors and seniors, to take approved college courses. Courses earned through the Accel Program carry both college credit and high school Carnegie unit credit. Accel is a state funded program that provides dual enrollment tuition assistance for qualified public and private high school students. Students must be at least 16 years old, meet a certain set of requirements and submit necessary paperwork to participate. Students interested in this program should contact their High School Counselor to obtain the necessary paperwork.

Admission Requirements

- Admission requirements for joint enrollment or early admission are:
- Minimum scores of
  500 on the SAT I Verbal (21 ACT-English)
  500 on the SAT I Math (21 ACT-Math)
- Minimum academic high school GPA of 3.0
- On-track for completion of CPC requirements by the end of the senior year in high school
- Written consent of the parent or guardian (if student is a minor)

A college course may not be used to fulfill the University System of Georgia's CPC requirements except:

- English Minimum required score of 530 on the SAT I Verbal (23 ACT-English)
- Social Studies Minimum required score of 530 on the SAT I Verbal (23 ACT – English)
- Mathematics Minimum required score of 530 on the SAT I Math (22 ACT-Math)

Students who do not necessarily meet all of the above criteria but who demonstrate very high academic abilities through their SAT performance may be permitted to enroll in appropriate college courses. Specifically:

- Students with a score of at least 700 on the SAT I verbal (31 ACT-English) may be permitted to enroll in courses that require advanced verbal ability.

- Students with a score of at least 700 on the SAT I Math (31 ACT-Math) may be permitted to enroll in courses that require advanced mathematics ability.

- Students with a total score of 1370 on the SAT I (31 ACT-Composite) may be permitted to enroll in appropriate courses.

Advanced Placement Opportunities

Southern Polytechnic State University welcomes students who have pursued accelerated academic course work while in high school or through recognized national standardized programs. Such programs include:

- College Level Examination Program (CLEP)
- College Board's Advanced Placement (AP)
- International Baccalaureate (IB)

College Level Examination Program (CLEP)
Students may receive college credit for certain courses based on scores on the College Level Examination Program offered by the College Entrance Examination Board. The criteria for credit awarded under this program are as follows:

CLEP Exam	Minimum Score	SPSU Course for Credit	Hours
American Government	50	POLS 1101*	**3**
American History	50	HIST 2111 or 2112*	**3**
College Algebra	50	MATH 1111	**3**
English Composition (Essay Edition) General Exam	500	ENGL 1101	**3**
English Literature	50	ENGL 2120	**3**
General Psychology	50	PSYC 1101	**3**
Introductory Calculus	50	MATH 2253	**4**
Introductory Micro/ Macro Economics	50	ECON 1101	**3**
Trigonometry	50	MATH 1113	**4**
Western Civilization	50	HIST 1011 or 1012 or 1013	**3**

*In order to receive credit for HIST 2111 or 2112, or POLS 1101 and satisfy the constitution requirement for graduation, the student must also complete HIST 2911 with a grade of "C" or better.

Advanced Placement Program
Students may receive college credit for certain courses based on scores of the Advanced Placement (AP) Exam as follows:

AP Exam	Minimum Score	SPSU Course for Credit	Hours
American Government	3	POLS 1101*	3
AB Calculus Test	3	MATH 1111, 1113, and 2253 or 2240	10 or 11
BC Calculus Test	3	MATH 1111, 1113, 2253 or 2240, 2254	14 or 15
Biology (with proof of lab)	3	Biology 2107K and 2108K	8
Computer Science A	3	CS 1301	4
Chemistry (with proof of lab)	3	Chemistry 1211K and 1212K	8
Computer Science AB	3	CS 1301,1302	8
English-Language/ Composition	3	ENGL 1101	3
English-Language/ Composition	5	ENGL 1101, 1102	6
English-Literature/ Composition	3	ENGL 1101	3
English-Literature/ Composition	5	ENGL 1101, 1102	6
Physics B (with proof of lab)	3	PHYS 111K and 1112K	8
Statistics	3	MATH 2260	3
United States History	3	HIST 2111*	3
United States History	5	HIST 2111, 2112*	6

*In order to receive credit for HIST 2111 or 2112, or POLS 1101 and satisfy the constitution requirement for graduation, the student must also complete HIST 2911 with a grade of "C" or better.

Official results must be sent directly from the Admissions Testing Board of the College Board to SPSU for credit to be awarded.

International Baccalaureate Program
Students may receive college credit for certain courses based on scores of the International Baccalaureate Exam as follows:

Subject Taken at the Higher Level	Minimum Score	SPSU Course for Credit	Hours
American History	4	HIST 2111, 2112	6
Biology	4	BIOL 2107K or 2108K	4
Biology	5	BIOL 2107K, 2108K	8
Chemistry	5	CHEM 1211K, 1212K	8
Economics	5	ECON 1101	3
English	4	ENGL 1101	3
Foreign Language	5	Free Elective	3
Mathematics	4	MATH 1111, 1113, and 2253 or 2240	10 or 11
Mathematics	5	MATH 1111, 1113, 2253 or 2240, 2254 and four additional credit hours based on exam content	18 or 19
Physics	5	PHYS 1111K, 1112K or PHYS 2211K, 2212K	8

Official results must be sent directly from the Admissions Testing Board of the College Board to SPSU for credit to be awarded.

Admission from Other Colleges

General Information
Transfer applicants for admission are students who have earned college credit at regionally accredited collegiate institutions and wish to transfer to SPSU to pursue a degree.

Students planning to transfer from another college must have transcripts sent directly from all colleges attended to our admissions office without regard to the applicant's wishes concerning transfer credit for courses.

The application deadline dates for each semester are as follows:

Semester	Deadline Date
Summer	May 1
Fall	August 1
Spring	December 1

Required Documents
Unless otherwise noted for a specific admission type/category, the application file is complete and ready for review when the Office of Admissions (Southern Polytechnic State University, 1100 South Marietta Parkway, Marietta, Georgia 30060-2896) has received the following:

- A completed Undergraduate Application for Admission to Southern Polytechnic State University
- A $20.00 non-refundable application processing fee (check made payable to Southern Polytechnic State University)
- Some applicants may be required to present TOEFL scores, or COMPASS scores
- College transcripts (mailed directly from colleges attended)
- A valid Certificate of Immunization

High school transcripts and SAT I or ACT scores are generally not required for applicants with 30 or more semester hours of acceptable transfer credit. If there is any doubt that you have the required transfer work, you should submit these documents as well.

Transfer Admissions

Transfer Freshman Admissions Standards
Applicants with fewer than 30 semester hours of acceptable transfer credit will be considered under the following policies:

- Applicants must meet the same admission requirements as freshman admitted from high school.
- Applicants must have completed and exited all required remedial courses at their previous institution.
- Applicants must not be on dismissal from their previous institution.
- Applicants must have at least a 2.0 cumulative college GPA.

Transfer Admissions Standards for Sophomores and Upperclassmen
Transfer applicants with sufficient transferable hours to be classified as a sophomore, junior or senior at SPSU will be considered under the following policies:

- Applicants must have completed and exited all required remedial courses at their previous institution
- Applicants must not be on dismissal from their previous institution
- Applicants must have at least a 2.0 cumulative college GPA

The Award of Transfer Credit

This section describes the procedure used to review and determine acceptance of transfer credit for students enrolling at Southern Polytechnic.

Policy for Acceptance of Transfer Credit
The policy regarding the acceptance of courses by transfer is to allow credit for:

- University-level courses completed with a grade of "C" or better
- Courses from programs that have been accredited by regional accreditation authorities

NOTE: Course must generally correspond in credit hours and content to courses offered at SPSU

In order for transfer credit to be evaluated:

- An official transcript, requested by the student, must be on file in the Office of the Registrar
- The student must be accepted for admission

Allowance of transfer credit does not mean necessarily that all approved credit will be applied toward a specific Southern Polytechnic degree. The student's major Department Chair and the Registrar's office will determine the amount of transfer credit that may be applied toward a degree.

Southern Polytechnic reserves the right to test the proficiency of any student in course work transferred from another institution when such course work was not taken as a part of the University System of Georgia Core Curriculum Program. Therefore, Southern Polytechnic reserves the right to disallow transfer credit in such course work if the student cannot demonstrate acceptable proficiency.

The total amount of transfer credit acceptable to Southern Polytechnic is subject to the university's regulations related to the residency requirements applicable to the degree sought (see Academic Regulations for residency requirements).

Each Department Chair recommends the specific credit for corresponding work completed by students at other institutions, and it is then approved for transfer by the registrar. The total amount of recommended credit shall not exceed that allowed by the registrar.

Except for the transfer of core courses as required by the University System of Georgia, transfer credit will not be allowed for courses completed at another institution that have been failed at SPSU.

Special Admission Categories

SPSU has a number of special categories other than those for freshman and transfer applicants.

Nontraditional Freshman Admission Standards
Nontraditional freshman are those students who:

- Have not attended high school or college within the previous five years
- Have earned fewer than 30 transferable semester hours of credit
- Hold a high school diploma from an accredited secondary school or a GED certificate which satisfies the minimum requirement of the State of Georgia

Applicants eligible for review in this category are exempted from the SAT/ACT and College Preparatory Curriculum requirements; however, all other admission requirements must be met. These students will be required to take the COMPASS Exam and score 74 on the Reading, 60 on the Writing and 37 on the Algebra exams. The COMPASS Exam is given on the campus of SPSU.

Transient Students
Transient students are those students attending Southern Polytechnic State University for a limited period of time, usually one semester, and who are expected to return to their previous college at the beginning of the next semester.

Transient credit earned at Southern Polytechnic State University may not be applied toward the residency requirement.

- A transient applicant must submit to the Admissions Office:
- An application
- A transient letter from the Registrar of his or her college (good for the semester of application only)
- A certificate of immunization
- A $20 nonrefundable application processing fee (check made payable to Southern Polytechnic State University).

It is the responsibility of the transient applicant to determine (with assistance from his or her home college) the course(s) he or she should take on the SPSU campus.

Post-Baccalaureate/Non-Degree
The non-degree category exists for those students who have previously earned a baccalaureate degree from a regionally accredited institution and who wish to enroll in undergraduate courses for personal or professional reasons instead of degree completion.

Students applying for this non-degree status must submit:
- An application for admission
- The $20 non-refundable application processing fee
- An official transcript from the institution that awarded the initial degree
- The certificate of immunization

Students who are admitted under this category and later decide to pursue a degree must furnish official transcripts from all colleges attended and meet transfer admission requirements.

Audit Students
Persons not seeking a degree from Southern Polytechnic State University yet wishing to gain knowledge from courses taught here may apply for admission as audit students.

An audit student is required to file:
- An application form
- A $20 nonrefundable application processing fee
- Official proof of graduation or official copy of scores on the GED test
- A certificate of immunization

An auditor will receive grades of "V" and will not receive transferable credits. In order to become a regular student, auditors must meet regular entrance requirements. An audit student may not change to regular student status after beginning a course as an auditor. The audit grade "V" may never be used as a basis for gaining credit in any course.

Students Sixty-two Years of Age or Older
Citizens of the State of Georgia who are 62 years of age or older may attend Southern Polytechnic State University without payment of fees (except for supplies and laboratory or shop fees) **when space is available**
in a course scheduled for resident credit.

To be eligible for participation under this amendment to the Georgia Constitution, such persons:
- Must present a birth certificate or other comparable written documentation of age to the Registrar's Office at the time of registration
- Must meet all University System and Southern Polytechnic State University admission requirements,
- Must meet all University System, Southern Polytechnic State University, and legislated degree requirements if they are degree-seeking students

Undergraduate Certificate Program Admission Requirements
Applicants applying for Undergraduate Certificate programs must meet the same admissions requirements as those who are seeking an undergraduate degree.

Regents Engineering Transfer Program (RETP)

SPSU participates in the Regents Engineering Transfer Program. Students who wish to pursue an engineering degree may begin coursework at SPSU and later transfer to Georgia Technical Institute. Courses available include the University System core (areas A-E) and selected engineering courses. For additional information contact the RETP coordinator at 678 915-3172.

International Students

Admission of Students with Non-U.S. Academic Credentials
Admission of students whose secondary education was completed outside of the United States system of education may be considered for admission with:

- Acceptable foreign credentials
- English language proficiency as described below

Academic Admissibility of Freshman Students

Foreign Credentials
Students seeking to gain admission as freshmen must have:

- Academic performance as described by a certificate, diploma, or other documents generally equivalent to U.S. college preparatory studies
- Official or certified true copies of all secondary school records, with a certified English translation

(The University reserves the right to require foreign credentials to be evaluated by an approved professional foreign credential evaluation service at the expense of the applicant.)

English Proficiency
Students whose first language is not English and whose language of instruction throughout secondary school was not in English are required to demonstrate English proficiency.

Non-native speakers of English who:

- Transfer from institutions of higher education outside of the U.S. where English was not the language of instruction
- Have less than 30 semester hours of college credit

May be exempted from the SAT requirements; however, they must take the following tests with minimum scores as indicated:

Test	Minimum Score
Paper TOEFL or Computer TOEFL	550 213
COMPASS	74 Reading 60 Writing 37 Algebra

The COMPASS is given on the campus of SPSU.

Academic Admissibility of Transfer Students

Foreign Credentials
Students seeking to gain admissions as transfer students must have:

- Academic performance equivalent to a 2.0 transfer grade point average from all colleges/universities previously undertaken by the student
- Official or certified true copies of all secondary school records, with a certified English translation is required

(The University reserves the right to require foreign credentials to be evaluated by an approved professional foreign credential evaluation service at the expense of the applicant.)

Additional Requirements for International Applicants
In addition to meeting the regular admission requirements, international applicants needing a student visa (F-1 or J-1) must complete a Financial Affidavit. The Financial Affidavit must show ability to meet the financial obligations of tuition, fees and living expenses before an I-20 or acceptance letter will be issued.

Current (less than one year old) letters of financial support must accompany the Financial Affidavit. Financial Affidavit forms are available in the Admissions Office.
All international students must purchase medical insurance made available through Southern Polytechnic State University.

Sources for Test Scores and Required Forms

SAT I and II Tests	ACT Tests
College Entrance Examination Board Box 6200 Princeton, NJ 08541 or register online at http://www.collegeboard.org SPSU's Institutional Code: 5626	American College Testing Program P.O. Box 414 Iowa City, Iowa 52243 or register online at http://www.act.org SPSU's Institutional Code: 0865
SAT I and II Tests	ACT Tests
College Entrance Examination Board Box 6200 Princeton, NJ 08541 or register online at http://www.collegeboard.org SPSU's Institutional Code: 5626	American College Testing Program P.O. Box 414 Iowa City, Iowa 52243 or register online at http://www.act.org SPSU's Institutional Code: 0865
Admission Application & Immunization Forms	TOEFL Exams
SPSU Office of Admissions 1100 South Marietta Parkway Marietta, GA 30060 or on SPSU's Website: http://www.spsu.edu	Educational Testing Services P.O. Box 6151 Princeton, NJ 08541, USA or http://www.toefl.org SPSU's Institutional Code: 5626

Financial Aid Information

Purpose and Philosophy

Southern Polytechnic State University subscribes to the principle that the primary purpose of a financial assistance program is to provide aid to students who without such assistance would be unable to attend or remain in school.

The financial aid program is intended to assist students in meeting normal university expenses and to help as many students as possible. An applicant should realize, however, that the amount of financial aid granted seldom meets all the student's educational expenses.

Steps to Apply for Financial Aid

Usually, step one in applying for financial aid is to fill out the Free Application for Federal Student Aid (FAFSA), which is available at the Student Financial Aid Office, or on the World Wide Web. The only exception to this is in the case of a student who will ONLY be applying for HOPE. HOPE applicants should apply directly to the Financial Aid office using the HOPE application. The HOPE application is available on the University's website.

Although applications are processed until all federal funds are expended, students who apply by the March 15 deadline have a greater chance of receiving financial aid than those who apply late.

Aid awarded to a student one year does not mean that he or she is eligible to receive aid in a subsequent year, unless the student continues to demonstrate need as defined by the U.S. Office of Education. An application, each year, is required to continue to receive financial aid.

Information and applications concerning financial aid may be obtained by writing to:

Director of Financial Aid
Southern Polytechnic State University
1100 South Marietta Parkway
Marietta, Georgia 30060-2896

or by calling the Office of Scholarships and Financial Aid at 678/915-7290 or 800/635-3204, or email at finaid@spsu.edu.

Types of Financial Aid

Types of aid for which one might be eligible include:

- The Federal Pell Grant
- The Federal Supplemental Educational Opportunity Grant (FSEOG)
- The Federal Work Study Program (FWSP)
- The Federal Family Educational Loan Program

Depending on financial need, the maximum that a student may borrow from the combined Subsidized and Unsubsidized Stafford Loan Program is:

Class	Dependent	Independent
Freshman	$2,625	$6,625
Sophomore	$3,500	$7,500
Junior/Senior	$5,500	$10,500

The total undergraduate loan amount is $23,000.

The PLUS Loan Program enables parents with good credit histories to borrow funds for each child who is enrolled at least half-time and is a dependent student.

The HOPE Scholarship Program provides financial assistance to students attending Georgia post-secondary institutions who achieve academic excellence throughout their high school studies.

To be eligible for HOPE, a student must:

- Be a Georgia resident
- Have graduated from a Georgia High School in 1993 or later
- Have earned a cumulative grade point average of at least 3.0
- And meet other regulatory requirements

Payment for Noncredit Courses
For a student to receive financial aid funds for remedial work, the coursework must be necessary for the student to pursue the eligible post secondary program. Students **may not** receive financial aid funds to pay for courses that they audit.

Satisfactory Academic Progress

Federal law requires students receiving federal student aid to maintain satisfactory academic progress as defined by the institution. The Satisfactory Academic Progress (SAP) requirements are separate from the regulations governing academic probation and suspension.

Southern Polytechnic State University's SAP requirements include:

1. **a maximum time frame requirement,**
2. **a completion rate requirement, and**
3. **a cumulative grade point average requirement.**

Aid recipients must meet each of the three in order to be considered to be making SAP and to continue to receive financial aid.

Maximum Time Frame Requirement
Financial aid recipients must complete their program within 150% of the published length of the program. To figure the maximum time frame:

- First check the catalog to determine the number of credit hours required for graduation in a particular major.
- Second, multiply the required number of credit hours by 150%.
- Third subtract the number of credits transferred in toward the major.

Example: A student majoring in Construction transfers in 50 semester credit hours. It takes 128 semester hours to earn a degree; therefore, the student's maximum time frame is (128 x 150%) - 50 = 142. This student's financial aid eligibility is exhausted once he or she has attempted 142 semester hours at SPSU.

Completion Rate Requirement
In order to complete a program of study within the required time frame, the aid recipient must complete 66.7% of the hours attempted to date at SPSU. Credit hours attempted will be cumulative and will include all hours in which the student was enrolled at the end of the official drop/add period each academic term and received a grade of A, B, C, D, F, W, WF, I, IP, S, and U.

Cumulative Grade Point Average Requirement
Undergraduate students receiving financial aid must maintain a cumulative grade point average (GPA) at or above the 2.00 minimum required for graduation. Graduate students receiving financial aid must maintain a cumulative grade point average at or above the 3.00 minimum required for graduation. The cumulative grade point average will be computed by dividing the number of quality points earned by the total credit hours attempted for which the student received grades of A, B, C, D, F, WF, or I. No quality points are earned for an F, WF, or I.

Other Financial Information

Tuition and Fees

SEMESTER RATES, EFFECTIVE FALL 2005

Georgia Residents

Credit Hours	1	2	3	4	5	6	7	8	9	10	11	12 or more
Undergraduate	386	496	606	716	826	936	1046	1156	1266	1376	1486	1587
Graduate	407	538	669	800	931	1062	1193	1324	1455	1586	1717	1848

Non-Residents

Credit Hours	1	2	3	4	5	6	7	8	9	10	11	12 or more
Undergraduate	713	1150	1587	2024	2461	2898	3335	3772	4209	4646	5083	5519
Graduate	801	1326	1851	2376	2901	3426	3951	4476	5001	5526	6051	6567

Distance Learning Options

1. SPSU Distance Learning Tuition and Fees 2005-2006

Courses to which distance learning tuition and fees apply are those courses in which at least 94% of the content is delivered via distance education (Internet, GSAMS, others) as determined by the SPSU faculty. These courses are designated in the bulletin as Section 900 or above courses.

Program or Level	Tuition
Undergraduate (resident and non-resident)	$180.00 / credit hour
Graduate (resident and non-resident)	$216.00 / credit hour
Technology Fee	$75.00 / semester

2. WebBSIT Distance Learning Tuition and Fees 2005-2006

The WebBSIT is a Bachelor of Science in Information Technology degree offered online via the Internet. It is a collaborative project of five University System of Georgia collecged and universities including SPSU.

Program or Level	Tuition
Web BSIT (resident or non-resident)	$265.00 / credit hour
Technology Fee	$75.00 / semester

3. eCore Distance Learning Tuition and Fess 2005-2006

SPSU is a USG eCore Affiliate. eCore classes include the university core curriculum offering in a fully online format. For more information or to enroll in eCore please contact Extended University at 678/915-3714.

Program or Level	Tuition
eCore Classes (resident or non-resident)	$138.00 / credit hour

Student Fees

The Board of Regents of the University System of Georgia establishes matriculation and Non-Resident fees. All fees and charges are subject to change without notice; however, Southern Polytechnic will make every effort to communicate changes as they occur.

The following required fees are included in the above charges for all enrolling students:

- Activity $41
- Recreation - Wellness Center $51
- Athletic $86
- Health Service $23
- Technology $75

Parking Fees of $15.00 are not included.

OTHER APPROVED FEES

SOUTHERN POLYTECHNIC STATE UNIVERSITY
DETAILED STUDENT CHARGES FOR FALL, SPRING, SUMMER SEMESTER(s) **2005 – 2006**

Miscellaneous Fees	**Amount**
PO Box Rental	$9.00
Credit by Examination Fee	$50.00
Student Center Locker Rental- Initial	$8.00
Student Center Locker Rental -Renewal	$5.00
Graduation Fee	$25.00
Late Graduation Petition Fee	$100.00
Graduation Update Fee	$25.00
Late Registration Fee	$25.00
Returned Check Fee	$25.00
International Student Insurance (per term) *Pro-Rated for Summer Term*	$189.00
Vehicle Parking (per term)	$15.00
Application Fee - Domestic Applicants	$20.00

DORMITORY RATES	**Amount**
Howell Hall - Double Room Occupancy Only	$1,605.00 Per Semester
Norton Hall - Double Room Occupancy Only	$1,605.00 Per Semester

APARTMENT RATES Per Unit (rented by the bedroom)	
University Commons Apartments 2 Bedrooms, 2 Baths	$515.00 Per Month
University Commons Apartments 4 Bedrooms, 2 Baths	$435.00 Per Month
University Courtyard Apartments 4 Bedrooms, 4 Baths	$495.00 Per Month
Application Fee	$100.00

- *All Dormitory Residents are Required to Purchase Either a Fourteen or Nineteen Day Meal Plan*

MEAL PLANS *	**Amount**
Seven Meal Plan (One Meal Per Day over a Seven Day Period)	$650.00
Fourteen Meal Plan(Two Meals Per Day over a Seven Day Period)	$980.00
Nineteen Meal Plan - Three (3) Meals Per Day(Includes a Weekend Brunch and Dinner)	$1,140.00

- *All Dormitory Residents are Required to Purchase Either a Fourteen or Nineteen Day Meal Plan*

Fee Payment

Registration and fee payment dates are published in the registration bulletin. Payment of fees and other charges may be made with:

- Cash
- Checks
- Approved financial aid
- Credit cards

(Visa, MasterCard, and American Express are accepted on campus in the Business Office and the University Bookstore.) Debit cards issued under the HONOR system (ATM) are also accepted.

Registration fees may be paid on the SPSU web site using the same credit cards. On-line transactions are fully encrypted for the safety of both the student and the university.

Students who register for courses and pay appropriate fees using any acceptable method of payment shall be considered enrolled and space shall be reserved in the class(es) for the duration of the term.

Payment of matriculation or non-resident matriculation shall not be accepted after the close of business at the end of the official drop/add period. Students are encouraged to register and pay fees as early as possible to avoid potential problems. Students who pay residence hall fees after the official drop/add period will be assessed a non-refundable late payment fee of $45.

All payments returned to the University due to insufficient funds are subject to a $25.00 returned check fee. Any outstanding returned check payments will be turned over to either a collection agency or the State Attorney General's Office for further legal collection action. All accounts turned over to a third party for legal collections will be subject to an additional collection cost of twenty five percent in addition to the original debt owed to the University.

Cancellation of Registration

Failure to pay tuition and fees by the published deadline date can cause the cancellation of your registration.

Advanced Registration

SPSU offers an advanced registration period for currently enrolled students to give them the opportunity to secure a schedule for a coming term. In order to keep a schedule that is produced during advanced registration, students must:

- Register for classes during the advanced registration period
- Pay for classes (or apply for financial aid) before the published fee payment deadline for advanced registration (students who have signed an official award letter which signifies acceptance of the financial aid award are considered to have paid their fees)

If these actions are not taken, the schedule will be removed from the computer system and the student will be required to register again during regular registration.

Regular Registration

Regular registration is the period immediately before the beginning of a term when a student registers for classes.

The registration process is not complete until payment of fees is completed. Students who have signed an official award letter, (which signifies acceptance of the financial aid) and have registered for classes, are assumed to be students who will attend classes.

The fee payment deadline for regular registration is published each term in the registration bulletin.

Delinquent Accounts

All delinquent debts and/or obligations to the University will be turned over to either a collection agency or the State Attorney General's Office for further legal collection action. All accounts turned over to a third party for legal collections will be subject to an additional collection cost of twenty five percent in addition to the original debt owed to the University.

Refund of Fees and Charges

Refunds of fees and charges will be made only upon official withdrawal from all classes through the Registrar's Office. A student who partially withdraws (withdraws from some classes, but is still registered in other classes) after the official drop/add period **does not receive a refund**.

The Board of Regents of the University System of Georgia and the Department of Education establishes the refund policy for the university. The refund schedule is published in the Registration Bulletin.

Residence hall charges are refunded on a pro-rata basis, only by separate application to the Director of Housing and Residence Life. Refunds are subject to the rules and regulations regarding student responsibilities in the residence halls, as outlined in the Student Handbook.

Where applicable, any refunds resulting from unearned financial aid will first be returned to the Title IV programs, other sources of aid, and/or finally to the student. The student must repay all funds to the university that are determined to be "unearned financial aid" that resulted from the calculated refund.

Vehicle Parking Fee

Students who are currently enrolled may purchase a parking permit each term at a cost of $15. Permits valid for the academic year (fall, spring, and summer terms) are available at a cost of $45. A limit of one vehicle per student is allowed on campus at any given time. To avoid traffic fines, parking permits must be purchased prior to the end of the first week of classes. For additional information and a copy of university parking regulations, contact the University Police Department.

Academic Credit by Examination

Students who wish to attempt academic credit by examination shall be charged a testing fee of $50.00. An official receipt from the Business Office must be presented prior to taking the examination. Acceptance of the fee from a student does not imply that the credit by examination has been approved by the university. All requests for credit by examination are subject to approval by the academic department and by the registrar.

Graduation Fee

Every student receiving a degree must pay a graduation fee of $25. The final due date for payment of this fee is published in the registration bulletin. Students who fail to observe the petitioning deadline are charged a late fee of $75.00 (in addition to the $25.00 fee).

International Student Health Insurance

Based on the guidelines provided by the American College Health Association and NAFSA: the Association of International Educators, Southern Polytechnic State University requires international students on F-1 and J-1 visas to purchase the endorsed SPSU International Student Insurance policy. Payment of this fee is mandatory and should be paid directly to the Office of Business and Finance along with payment of tuition and miscellaneous fees. Purchase of this insurance policy is mandatory each semester.

Regents' Requirement for Georgia Residence Classification

A person's legal residence is his or her permanent dwelling place. It is the place where he or she is generally understood to reside with the intent of remaining there indefinitely and returning there when absent. There must be a concurrence of actual residence and of interest to acquire a legal residence.

Because the overwhelming proportion of financial support for the operation of the public institutions of higher education in Georgia comes from the citizens through the payment of taxes, the determination of whether a student is classified as a resident or a nonresident of the state is a significant matter. The fees paid by resident students cover only about one-fourth of the total cost of their education in the University System. Therefore, Georgia taxpayers are contributing three-fourths of the necessary funds to provide quality education for the citizens of the state.

Students are responsible for registering under the proper residency classification. Any student classified as a nonresident who believes that he or she is entitled to be reclassified as a legal resident may petition to the Registrar's Office for a change of status.

The Board of Regents establishes all rules regarding residency classification.

Students Sixty-two Years of Age or Older

Citizens of the State of Georgia who are 62 years of age or older may attend Southern Polytechnic State University without payment of matriculation and fees (except for supplies and laboratory or shop fees) when space is available in a course scheduled for resident credit.

To be eligible for participation under this amendment to the Georgia Constitution, such persons:

- Must present a birth certificate or other comparable written documentation of age to the Registrar's Office at the time of registration
- Must meet all University System and Southern Polytechnic State University admission requirements
- Must meet all University System, Southern Polytechnic State University, and legislated degree requirements if they are degree-seeking students

Student Affairs and Student Life

The student affairs areas at Southern Polytechnic State University include:

- Student housing
- Student activities
- The Student Center
- Student health services
- Recreational sports and intercollegiate athletics
- Career & Counseling services
- Cooperative education
- Judicial Programs

The Dean of Students supervises a professional staff which is responsible for providing these services and activities for students. In addition, the Dean of Students should be contacted by students with hardship situations or by those who are encountering difficulties with campus life.

Emergency Locator Service

Emergency assistance in locating a student is provided by the Office of the Dean of Students (678-915-7374) during normal school hours, from 8:00 a.m. until 5:00 p.m., Monday through Friday. The University Police Department provides emergency assistance in locating students on weekends and after 5:00 p.m. on weekdays (678-915-5555).

Student Housing

With the addition of newly built and acquired apartment units, SPSU now offers nearly 1200 on-campus beds for student housing. In addition to providing a convenient and economical "home", on-campus living also meets a student's physical needs of shelter, comfort, and attractive surroundings. Living on campus contributes to the educational development of each student through exposure to students of varied backgrounds, experiences, and personal philosophies. The Director of Residence Life, who is assisted by a professional staff from the Ambling Management Company and paraprofessional student staff, supervises the Residence Life program. The primary function of the residence life staff is to create and maintain a desirable environment for all residents.

Application
All students who have applied for admission to Southern Polytechnic State University and who have requested information about on-campus housing will be sent an application. Since space is limited, it is important to make requests for housing early. A request for housing consists of:

- The completed and returned Residence Life lease agreement
- A $100 application fee

The application and fee should be sent to the University's Residence Life Office. However, completing the request does not guarantee housing will be assigned. When the lease agreement and deposit have been received, a notification of housing status will be sent by Residence Life.

The Director of Residence Life is responsible for all room assignments. Preferences for a specific residence hall or apartment will be honored whenever possible. Mutual roommate requests should be so marked on the lease agreements of both students. Consideration of a roommate request will be given providing the request is mutual and space is available.

Student Health Services

The school nurse, who is on duty Monday through Friday in the clinic located in the Recreation and Wellness Center, provides limited outpatient services for minor illnesses. If the nurse cannot provide sufficient medical treatment, she may refer the student to a medical facility located near the campus. Due to the limits on the health services provided by Southern Polytechnic State University, each student is encouraged to have adequate health and accident insurance through either a personal or family insurance policy.

International students are required to have private health insurance protection. Southern Polytechnic State University is not responsible for any medical expenses incurred by international students beyond those that are covered for any student paying the Student Health Fee.

Career and Counseling Center

Counseling Services
The Career and Counseling Center offers a variety of counseling services to students, including help with personal, academic, and career concerns.

Personal concerns such as anxiety, depression, relationship problems, low self-esteem, low self-confidence, and communication issues can make it very difficult for students to gain the most from the university environment and from their classes. Professional counselors provide **individual sessions for students** seeking confidential assistance with these and other personal issues.

Part of the career development process involves increasing our self-understanding in such areas as our values, life goals, interests, and skills. **Counselors can help students increase their self-understanding and learn how to match their personal characteristics with the work environments that a university education makes possible for them.**

Academic concerns center on more effective time management, study skills and dealing with test anxiety. Counselors can assist students in identifying deficiencies in these areas to make the overall academic experience more successful. Many students find university work more difficult than they expected and find that it strains their abilities.

Counselors can assist students to develop skills in stress management, overcoming test anxiety, test-taking strategies, academic motivation, and enhancing memory by understanding learning style.

The Career and Counseling Center provides a variety of tests that are adjunctive to counseling services. With the student's consent, counselors use these instruments when they feel that the data provided will facilitate the student's use of the service.

Counselors provide outreach programs on many topics, including stress management, assertiveness training, depression, deciding on a major, relationship building, and special student concerns.

All counseling services are **free of charge**, confidential, and are available on an appointment or a walk-in basis.

Career Services
The Career and Counseling Center provides placement assistance for graduates and students seeking full-time or part-time employment. The Center provides assistance to students in preparing for the job search and obtaining employment suited to their career goals and aspirations, but can never guarantee employment for any student or graduate. Services offered include:

- Assisting in resume preparation
- Offering career search workshops and mock interviews
- Resume referral
- Campus interviews

In addition, the Center maintains employer and occupational information as well as a part-time and temporary job listings.

Students are encouraged to make use of the career services as early as possible during their stay at Southern Polytechnic. **Degree candidates should begin the job placement process two semesters prior to their graduation.**

Students interested in part-time or temporary employment should survey the jobs listed on the Career and Counseling Center web page. Some of the jobs require technical expertise; however, many require no experience. Most students seeking part-time employment are able to find suitable work in the metro area. Alumni assistance is also offered through the Career and Counseling Center. Employment opportunities for alumni are posted through our Career Lane database on the Center's web page.

Cooperative Education

Southern Polytechnic State University offers its students the opportunity to gain valuable work experience related to their academic majors through a university-work sponsored cooperative education program. The co-op plan is provided on an optional alternating-term basis in most bachelor degree programs. Co-op is founded on the principle that learning takes place through practical experience as well as through academic achievement. In addition, co-op helps students in their career decision making process and provides substantial support for education expenses.

Students wishing to apply for the co-op program must:

- Have completed at least 24 semester hours of academic credit toward their degree
- Be in good academic standing with the university
- Have and maintain a minimum 2.00 scholastic average (many industries require higher averages)
- Be willing to participate in no less than three alternating co-op work assignments

Co-op students are required to follow all guidelines set forth by the Career and Counseling Center as well as rules and regulations of the university. In addition to university requirements, students must meet any additional company co-op requirements. Students unable to maintain university or company co-op requirements are given one probationary term to correct deficiencies before being withdrawn from the co-op program.

A co-op program can be started with industry in a number of ways:

- Student contact
- University referral
- Industry initiation

The Career and Counseling Center refers students to employers after they have been accepted as a co-op applicant, however, acceptance as a co-op applicant does not guarantee a student's employment in a co-op position. The employer has the final decision regarding offering co-op employment. Upon acceptance of a co-op position, the student is expected to remain with that company for a minimum of three co-op work terms.

Co-op salaries are determined by the employer and normally increase with job responsibilities. Board and lodging during work terms are the responsibility of the student, but in most cases co-op employers can provide assistance in locating suitable accommodations. Students with metro-Atlanta co-op assignments may live in Southern Polytechnic State University residence halls. In addition, students with local co-op work assignments are eligible to participate in all extracurricular, intramural, and health service activities on campus with the payment of the regular student athletic, activity, and health fees. Although no credit is awarded, the university views co-op students as active, continuing, full-time students during their periods of approved work experience for insurance and financial aid purposes.

Although neither the student nor the employer makes a commitment for full-time employment upon completion of the co-op program, many Southern Polytechnic State University co-op students are offered career employment with their co-op employers. Satisfactory completion of both requirements for graduation and co-op guidelines make an undergraduate student **eligible to receive recognition** for participation in the co-op program on his or her Southern Polytechnic State University diploma and academic record. Students interested in the co-op program should contact the Cooperative Education Coordinator in the Career and Counseling Center.

Internship Program

The Southern Polytechnic State University Internship program is a short-term work experience in a professional environment where the emphasis is on learning versus earnings. It is designed to enhance academic, personal, and professional development and will assist you in making a smooth transition from the classroom to the world of work, or to provide students with insight about potential careers. Usually, an Internship is a one-time experience for a student who has attained at least some academic preparation in a professional field.

Internship Eligibility and Requirements:

- Must be a registered student at the time of application to the program
- Must have completed at least one semester
- Must have maintained at least a 2.0 GPA (undergraduate)
- Must have maintained at least a 3.0 GPA (graduate)

International Students
Must obtain written eligibility authorization from the SPSU International Services Office before beginning EACH working assignment. Due to the INS regulations, International students are not permitted to Intern more than one and a half-academic years for undergraduates and one academic year for graduates. Once an Internship is obtained, International students MUST return to the International Office to complete additional paper work. International students failing to do so will be DROPPED from the Internship Program.

Advantages include:

- Providing career related hands-on work experience
- Earning a competitive salary for school and tuition expenses
- Learning the company culture
- Networking with professionals
- Helping get your foot in-the-door for full-time employment
- Developing self-confidence
- Establishing valuable contacts for letters and references
- Gaining practical experience in the work environment
- Improving opportunities for post graduate jobs
- An opportunity to work with professionals in your field
- Learning to work with colleagues

The Student Center

Southern Polytechnic State University's Student Center includes:

- Food service and dining areas
- A 475 seat theater for films, concerts, and entertainment productions
- A bookstore
- A post office
- A large recreation room featuring pool and ping-pong tables
- Additional meeting rooms, lounges, and TV/video viewing areas
- A Cyber Café offering 8 internet & e-mail computer stations

Offices for the Dean of Students, Student Activities, and Counseling & Career Services are also located in the student center.

The student center is the focal point for the majority of entertainment activities provided by the Campus Activities Board including concerts, dances, and videos. Also, the student government, newspaper, radio station, fraternity/sorority and other student organization offices are located here. The Student Center is where the Southern Polytechnic State University community comes together to eat, meet, relax, and be entertained.

The Bookstore

The Southern Polytechnic State University bookstore is located on the lower level of the Student Center. In addition to new and used textbooks, you can also purchase:

- Software
- Reference books
- School supplies
- Engineering supplies
- Calculators
- SPSU apparel
- Greeting cards
- Health and beauty aids
- Drinks and snacks

On the last day of registration and the first week of classes, the bookstore is open for extended hours.

The Post Office

The Southern Polytechnic State University Post Office is located next to the Bookstore and is open 9:00 a.m. to 5:00 p.m. Monday through Friday. Post Office boxes are available for rental by the term.

Athletics and Recreational Sports

The Department of Recreational Sports maintains a comprehensive program of activities that appeal to the leisure time interests and needs of the campus community.

Activities available through the intramural sports program include competitive team sports leagues such as:

- Flag football
- Volleyball
- Basketball
- Softball

There are also individual competitive tournaments such as:

- Billiards
- Golf
- Tennis
- Racquetball

In addition to the intramural sports program, the department offers:

- A club sport program
- A wellness program
- Special events
- An outdoor recreation program

The outdoor recreation program sponsors various adventure trips throughout the year.

Recreational Facilities

The Recreation and Wellness Center, opened in the summer of 1996, offers many recreational opportunities to the student. A state of the art weight room that includes free weights, Cybex weight training, and cardiovascular equipment highlights the facility. The facility also boasts a large multipurpose gym that accommodates 2 basketball courts, 2 volleyball courts, 4 badminton courts, and a perimeter jogging/walking area. The Recreation and Wellness Center also has 2 racquetball courts, locker rooms/showers, and a pool complete with an outdoor sunbathing area. The pool can be used for recreation, lap, and competitive swimming. The Department of Recreational Sports and Campus Health Services are housed in the Recreation and Wellness Center.

The Southern Polytechnic Outdoor Recreation Complex provides 3 softball fields and one large multipurpose field for student use. The intramural sports program makes use of these fields throughout the year with flag football, soccer, and softball leagues. Also included in the complex are 9 tennis courts and a half-mile jogging trail. The Southern Polytechnic Tennis Team uses the tennis courts for matches and practice.

Athletic Facilities

SPSU competes in the NAIA (National Association of Intercollegiate Athletics) Division I and is a member of the Southern States Athletic Conference. The University has three intercollegiate sports teams:

- Men's Basketball
- Woman's Basketball
- Baseball

The Athletic Department offices are located in the Athletic Gymnasium.

The ATTIC

The ATTIC (Advising, Tutoring, Testing, International Center) represents the collaboration of student services at SPSU. Located in J 253, the ATTIC houses advising for Joint Enrollment and General Studies students, Tutoring, Testing, International Student Services and Disability Services. For more information, call (678) 915-7361.

Joint Enrollment Advising
The Joint Enrollment Advisor guides Joint Enrollment students in selecting courses they need for their high school graduation and for their college careers. The Joint Enrollment Advisor also works with high school counselors. Before each semester, the Joint Enrollment Advisor assists students by discussing their course options and registering them for classes.

General Advising
Students who have not yet declared a major or are undecided about what course of study to follow need to see an Academic Advisor before registering for classes. The Academic Advisor assists students in selecting the most appropriate courses to take while students are deciding upon a major to pursue.

Tutoring
The ATTIC provides opportunities for individualized assistance to Southern Polytechnic students. Tutors help students with core courses in English, mathematics, physics, and ESOL (English to Speakers of Other Languages). Tutoring is conducted in J210 from 9:00-2:00 Monday-Friday and 5:00-8:30 Monday-Thursday.

Testing
The ATTIC administers the following tests:

- **Math Assessment Test (MAT) -** SPSU students take the math test to determine the level of math placement. The test consists of college algebra and pre-calculus. MAT scores will determine the appropriate starting point in SPSU's math sequence. Students may obtain MAT scores from their academic advisor or a program representative during an advising session, from the Testing/Disabilities Advisor, or from the Internet.

  Placement is based on the following scale:

If your score is	On this test	Start in this Mathematics Course
23 or lower	MAT 1+2	MATH 1111 College Algebra
24 or higher	MAT 1+2	MATH 1113 Pre-calculus
26 or higher AND 8 or higher	MAT 1+2 MAT 3	MATH 2253 Calculus Or MATH 2240 Elements of Calculus

Students are eligible to take any mathematics course at SPSU for which they have met all prerequisites. The ATTIC and the Mathematics Program offer math tutoring.

- **Regents' Test**
  The University System of Georgia requires that all students obtaining a degree have literacy competence. Students enrolled in an undergraduate baccalaureate degree program leading to a degree must pass the Regents' Test in order to graduate. The ATTIC offers guidance and advice on how to pass this critical test.

It is highly recommended that students visit the Regents' web site at **www.gsu.edu/rtp**. Here, students will find advice on how to write successful essays, how NOT to write failing essays, and will see a list of Regents' writing test topics.
Students may also visit the ATTIC tutoring center where they can review materials relating to the test and get help.

For additional information about the Regents' Test, see Academic Regulations in this catalog.

- **COMPASS**
  Non-traditional students-students should take COMPASS. The test consists of writing, reading, and algebra sections. A $15 fee must be paid in advance. Students may call (678-915 -7244) to make an appointment to take the COMPASS test.

Disability Services
The Disability Services/Testing Advisor coordinates academic support services for students who have a permanent or temporary disability. Individuals eligible for services include, but are not limited to, those with mobility, hearing, learning, visual, speech, or specific neurological disabilities. Services are available free of charge on a self-referral basis.

Students at Southern Polytechnic State University who have a disabling condition and need academic accommodations have the responsibility to voluntarily self-identify by scheduling an appointment with the Disability Services Advisor as soon as possible.

The ATTIC is responsible for providing special assistance for students diagnosed as having specific learning disabilities. To become eligible for special services at Southern Polytechnic State University, students must verify the specific learning disability by having a psychological evaluation on file in the ATTIC.

If you believe you have a specific learning disability, visit the ATTIC for more information.

Under the Americans with Disabilities Act (ADA), special services are available through the ATTIC to any learning-disabled student at Southern Polytechnic State University. All such services are offered based on individual needs.

International Student Services
International Student Services advises the University's international student body, faculty, and staff on Immigration and Naturalization regulations. The coordinator provides student assistance with banking, social security, insurance, housing, employment, practical and curricular practical training, travel regulations, income tax, and the lottery.

International Student Services provides cultural, social, and educational programs. CultureFest introduces international students' culture, food, and talent to the SPSU community. Friends of Internationals and AMIS (American Ministry of International Students) sponsor family and community activities.

Extended University

Extended University (EU) is an administrative unit reporting to the Vice President for Academic Affairs. The mission of EU is to provide services to SPSU, the business community and the community at large by extending, enhancing and expanding the traditional teaching and service roles of the university to new clients, in new formats and through the infusion of new technologies.
Extended University includes a variety of program and service units. For more information regarding these programs and services, contact the EU Dean's Office at 678/915-3714, stop by J -330, or visit the unit's web site
at: http://eu.spsu.edu

Office of Continuing Education
The Office of Continuing Education (OCE), located in Building F, is responsible for providing all non-credit professional continuing education instruction sponsored by the university. OCE sponsors open enrollment programs in computing, engineering, business, quality, and communications. OCE also offers customized corporate training. OCE Certificate Programs feature a sequential set of courses designed to provide a body of knowledge in selected areas. Currently available certificates include:

- BICSI/SPSU Telecommunications
- Certified in Convergent Network Technology (CCNT)
- Certified Information Systems
- Certified Professional Fiber Optic Installer
- Certified Quality Manager
- CISCO Certified Network Associate (CCNA)

- Distribution Fundamentals (TDF)
- E-Business Solutions in Java
- Embedded Systems (Yamacraw)
- Linux Professional and Linux +
- Microsoft Certified Systems Administrator
- Microsoft Office Specialist
- Network + and A +
- Oracle9i Database
- Outside Plant Engineering
- Practitioner (SSCP)
- Professional Project Management Certificate
- Security +
- Security Professional (CISSP)
- Six Sigma – Green and Black Belt
- Systems Security Certified
- Web Development

Call 678/915-7240 for additional information or check the OCE web site at: http://oce.spsu.edu

Office of Distance Learning (ODL)
The Office of Distance Learning (ODL) provides administrative, marketing and technical support for distance learning activities at SPSU. SPSU has offered distance-learning options in a variety of formats since 1995. Academic programs maintain the responsibility for program selection, content and delivery and ODL assists with administration and marketing as well as providing full technical support including development and delivery support. Methods for distance delivery at SPSU include videoconferencing, web and satellite. For more information go to:
http://eu.spsu.edu/DistanceLearning

Center for Quality Excellence (CQE)
The CQE, a training and consulting unit of the Office of Continuing Education, is an organizational development and improvement center that provides information, training, consulting, technical assistance, and
research, focused on the body of knowledge that relates to Quality Management, ISO 9001:2000, Six Sigma, CQM, CQIA, Customer Service, and Team Development. The CQE provides these services to private and public organizations to help them improve their organizational effectiveness and compete more successfully in the global marketplace.
For more information go to: http://cqe.spsu.edu

Academic Certificate Programs
Academic programs at SPSU may select to develop academic credit certificate programs through the Extended University. Certificate programs may enhance the University's programming by:

- Providing "bridge" programs to existing or new degrees
- Providing career transition opportunities
- Offering professional continuing education to selected professions
- And/or responding to industry-identified needs for retraining.

Current credit certificates include:
Undergraduate Programs in:

- Professional Certificate in Programming (PCIP)
- Certificate in Apparel Product Development (CAPD)
- Certificate in Quality Principles (CQP)
- Certificate in Production Design (CPD)
- Certificate in Logistics (CL)
- Certificate in Engineering Sales (CES)
- Professional Certificate in Project Management (PCPM)
- Land Surveying Certificate (LSC)
- Professional Certificate in Development (PCD)
- Professional Certificate in Specialty Construction (PCSC)
- Certificate in Professional Spanish

Graduate Programs in:

- Graduate Certificate in Software Engineering (GCSWE)
- Graduate Certificate in Quality Assurance (GCQA)
- Graduate Transition Certificate in Computer Science (GTCCS)
- Graduate Certificate in Information Technology (GCIT)
- Graduate Transition Certificate in Information Technology (GTCIT)

For more information go to: http://eu.spsu.edu/CertificatePrograms

Grant Development Center (GDC)
The Grant Development Center is designed to assist faculty and staff with identifying and securing sources of external funding to increase research and service.
For more information go to: http://eu.spsu.edu/GrantDevelopmentCenter

The Usability Center (UC)
Since 1995, The Usability Center at Southern Polytechnic has been helping clients apply usability concepts to products in the development process. This allows the user's experience to improve the product before it reaches market. The Usability Center provides usability testing, consultation, lab management, cognitive walk-through, heuristic evaluations, usability research, as well as participant recruitment and selection, and other customized usability related services.
For more information go to: http://usability.spsu.edu

Computing and Software Engineering - Industry Liaison
Services include the support and development for Industry Advisory Board, CSE newsletter development, support of academic credit certificates, administration of the Software Engineering Retraining Program, management of Software Center projects and support for other special projects.

Software Center
The School of Computing and Software Engineering has long been known for applications-oriented educational opportunities. Students regularly participate in class projects, internships, and co-op assignments. In addition, the Software Center offers opportunities to connect business representatives and SPSU students and faculty in research and development projects.
For more information go to: http://eu.spsu.edu/ComputingandSoftwareCenter

ICAPP Program Development
ICAPP Advantage prepares people to be knowledge workers (workers who generate value for others by creating, sharing or using ideas) in occupations that are in high demand and short supply in specific regional labor markets. ICAPP Advantage is directly tied to specific job commitments by employers.

- ICAPP was created to help employers succeed in Georgia. ICAPP is company-focused, and is not intended to create new degree programs at institutions.
- ICAPP Advantage can be used as an economic development incentive to encourage a company or other employer to either expand in or relocate to Georgia.
- ICAPP Advantage students earn credit hours that can count toward earning a degree. Students may also earn career-related certificates with the academic credit earned.

For more information go to: http://www.icapp.org

English Language Services (ELS)
ELS Language Centers provides a unique opportunity for foreign students to learn English as a second language or to improve their English proficiency.

ELS distinguishes itself as the finest in English language instruction by providing excellent customer service. ELS Language Centers have become the world's largest network of campus-based, English language instruction centers with over 30 locations throughout the United States. We provide full-time daily classes year-round in four-week terms. In addition, we offer specialized programs that are customized to fit your needs.
For more information go to: http://eu.spsu.edu/EnglishLanguageServices

Center for Teaching Excellence (CTE)
At the Center for Teaching Excellence, our job is to facilitate communication on teaching and learning issues and help SPSU continue to be an exceptional teaching-focused university.
The goals of CTE are:

- To provide state of the art teaching resources
- To promote excellence in teaching and learning
- To identify and share best practices in teaching
- To recognize and reward excellence in teaching

For more information go to: http://cte.spsu.edu

The University Honors Program

The University Honors Program of Southern Polytechnic State builds upon the university's excellent reputation for providing both theoretical and practical, applied approaches to learning. Honor students are given the opportunity to develop their talents and skills in an expanded and enriched curriculum featuring seminar-size classes that demand intellectual rigor.

Admissions
All prospective Honors students must apply to the Honors Program. Incoming freshmen who have at least a 1200 SAT score or ACT equivalent and at least a 3.5 high school GPA will be guaranteed automatic admission to the Honors Program. Students who do not strictly meet these guidelines, but who have other achievements that show promise of academic excellence are encouraged to apply. Students may download an application from the web site www.spsu.edu/honors/.

Advantages
While the main advantage of participation in the Honors Program is the intellectual rigor of the curriculum, there are other advantages as well:

- Eligibility for Honors scholarships or out-of state tuition waivers as appropriate
- Special Orientation Programs
- Priority Registration
- Honors course designation on student transcripts
- Honors advising
- Social and extracurricular opportunities
- Recognition upon graduation: in the commencement program, on the diploma, and with an honorary symbol as part of the graduation regalia.

Program Guidelines
To earn the University Honors Scholar Diploma at Southern Polytechnic State University, students must complete 18 credit hours of Honors coursework and at least 6 of those hours must be upper division coursework.

To earn the Departmental Honors Scholar Diploma, the student must complete 6 hours of enriched upper division coursework or directed study.

Students must have a minimum graduation GPA of 3.5 with a GPA of 3.0 or higher in Honors coursework to earn an Honors Diploma. All students must complete an Honors Project and an Honors Presentation. In addition, students are required to submit a final written report that is bound and placed in the library.

Probation and Dismissal
Students that fall below the required GPA are placed on probation for one semester. A student on probation whose GPA does not meet the requirements at the end of their next enrolled semester will be dismissed from the Honors Program

Honor Society

Superior scholastic achievement in engineering technology is recognized by membership in the Tau Alpha Pi National Honor Society. The original chapter of this society was founded on the Southern Polytechnic State University campus in 1953, and its members have not only demonstrated high academic achievements, but have also maintained various leadership positions in campus organizations.

For further information on SPSU's local Tau Alpha Pi chapter, please visit the web site at http://tap.spsu.edu.

The Library

General Information - The Lawrence V. Johnson Library collection consists of some 118,000 cataloged volumes and more than 1,300 periodical and serial titles. Other formats include microforms, U.S. Geological Survey maps for the State of Georgia, and CD-ROM products. The Reserves collection of professor reserves, and sample tests is made available to students for use in-house. E-Reserves is an increasingly popular service whereby professors and the library scan journal articles, lab schedules, sample tests, notes, and syllabi and deliver them electronically to the students.

GALILEO - Georgia Library Learning Online, popularly known as GALILEO, is an initiative funded by the University System that allows access to online databases, including full-text and full-image files. Faculty and students have access to more than 100 indexing and abstracting services and to the Internet. Additionally, students who bring their laptops will be able to access GIL, GALILEO and the Internet for research purposes in any of the Library's 30 study rooms.

GIL - The automated library union catalog, GIL, lists materials held by libraries throughout the state of Georgia. Materials from libraries nationwide may be obtained through the Interlibrary Loan service in the Reference department.

Additional information about services offered at the Johnson Library may be accessed at http://www.spsu.edu/library/library.html.

Licensure of Professional Engineers

To protect public safety, each state establishes laws to license engineers who are responsible for decisions that affect public health and safety. The licensing process involves formal education, two written examinations, appropriate work experience, and recommendations by professionals in the field. The two written examinations consist of the Fundamentals of Engineering (FE) and the Principles and Practices of Engineering (PE).

The requirements for a Professional Engineer vary by state, and not all states allow engineering technology graduates to seek licensure. However, it is possible for engineering technology graduates to become Professional Engineers in Georgia and many other states. In Georgia, students completing a bachelor’s degree in engineering technology may take the Fundamentals of Engineering (FE) exam in the senior year of study. After accumulating the requisite number of years of appropriate work experience, an engineering technology graduate who has passed the FE exam is eligible to take the PE exam in Georgia or other states in which they are eligible for licensure.

Any student with a goal of becoming a Professional Engineer should contact their faculty advisor for additional information.

University Police

Southern Polytechnic is committed to a safe, healthy environment in which our students, faculty and staff can grow professionally and personally. The University promotes strong safety policies and prompt reporting and investigation of any actions or events that would harm the well being of any student, employee, or faculty member.

The University Police employs police officers who comply with certification, training, and all other requirements of the Peace Officers Standards and Training Council of Georgia. Our officers have arrest powers on Southern Polytechnic property and on any public or private property within five hundred yards of property under the control of the Board of Regents. Our officers conduct preventive patrols on campus including the residence halls, secure University-owned property, investigate reported crimes at the university, conduct educational programs and workshops to promote personal safety, and actively work to prevent and detect crime throughout the Southern Polytechnic community. Our disclosure report can be found at http://police.spsu.edu.

Academic Regulations and Administrative Procedures

General Information

The university's academic rules and regulations are developed and approved by the faculty. The set of processes used to enforce regulations and maintain order are called administrative procedures. In general, each academic rule has an underlying administrative procedure.

For example, the criteria against which a student is judged for graduation is developed and approved by the faculty. The process that is used to examine records and declare a student eligible to graduate is an administrative procedure. Students may appeal either the faculty rule using a petition to the faculty, or the administrative procedure by using an administrative procedure petition. Examples of the kinds of issues that may be appealed are provided in the appropriate sections below.

Student Responsibility

Students are expected to have read this section of the catalog and to be generally familiar with academic rules. Students are expected to consult this section of the catalog and follow the procedures that are outlined herein when the appropriate time in their academic tenure approaches.

For example, a student who is within a year of graduating should review the graduation section and comply with the time table for petitioning to graduate. Frequently, the phrase "nobody told me" is used as justification for an appeal to a specific rule. Such justification is not acceptable.

In a pedagogical setting, students are expected to develop the ability to read and follow instructions as part of their educational experience. Academic advisors are available to help students interpret what they've read and to encourage appropriate actions. However, it is the student's responsibility to ask questions when in doubt, and to seek out information from official sources rather than to allow rumor to dictate actions.

Definitions

Full-time Student – Full-time status is defined for each student level in the table below. Remember that other agencies (such as federal financial aid) may have different definitions of full-time. The definitions below are used when enrollment verifications are produced by SPSU. Note that the definition of full-time changes for summer semester.

Fall and Spring	Part-Time	Half-Time	¾ Time	Full-Time
Undergraduate	Less than 6 Hours	6, 7, or 8 Hours	9, 10, or 11 hours	12 Hours or More
Graduate	Less than 4 Hours	4 or 5 Hours	6 or 7 Hours	8 Hours or More

Summer	Part-Time	Half-Time	¾ Time	Full-Time
Undergraduate	Less than 4 Hours	4 or 5 Hours	6 or 7 Hours	8 Hours or More
Graduate	Less then 3 Hours	3 or 4 Hours	5 Hours	6 Hours or more

NOTE: Most forms of financial aid (except HOPE) require that a student be registered for at least 6 hours without regard to the institutional definition of a full-time student.

Part-time Student – See table above.

Good Standing – An undergraduate student is in good standing who has a cumulative GPA of 2.00 or higher.

Grade Point Average – The grade point average is calculated by dividing the total quality points earned, by the total number of hours of credit for which grades have been received. Additional information is available on the registrar's web pages.

Advanced Registration – The first period of open registration for a term. Dates are determined by the registrar and posted to the academic bulletin. The purpose of the advanced registration period is to allow current students in good standing the opportunity to secure needed classes and to provide an indicator of course needs for the university. In order to remain registered, students are required to secure their classes by paying for them either through financial aid, or with legal tender.

Regular Registration – The registration period immediately before the term begins. Regular registration includes a period of free registration that extends into the new term by several days. There is no implied or explicit intent to allow students to use regular registration and the drop/add period to "shop" for classes. The intended purpose of the drop/add period is to allow students ample time to develop a schedule and make necessary adjustments.

Audit – Students who audit classes must declare their audit status during the drop/add period. Auditing provides students with the opportunity to attend a class without penalty or risk. The "V" grade is assigned when a course has been audited. No credit is given. This grade may not be used at any future date as a basis for receiving course credit. Courses taken under the audit status carry the same tuition and fees as courses taken in the normal mode. See "Registration" later in this chapter for details about auditing courses.

Withdrawal – Withdrawal is defined as the official act of discontinuing participation in a course or courses during a time in which withdrawal is permitted (usually after the drop/add period or regular registration, but before the mid-point of the term). Withdrawal must be initiated by the student. Students who withdraw during the withdrawal period earn a grade of "W". See "Registration" later in this chapter for details about withdrawing.

Drop – The term "drop" refers to the removal of a course from a student's schedule during the official drop/add period. Dropping classes results in no grade being issued and no charge for tuition or fees.

Administrative Procedures – Administrative procedures are the steps and actions taken in order to follow established rules and regulations.

Term GPA – The term GPA is the pure GPA earned during any particular term of attendance at SPSU.

Cumulative GPA – The cumulative GPA is a student's GPA that includes all course work taken throughout all terms of attendance at SPSU. Grades from other institutions are not included in a student's SPSU cumulative GPA.

Appeals and General Processes

Exceptions to Academic Regulations

Exceptions to the Academic Regulations of Southern Polytechnic State University may be made by the faculty or by the Registrar whenever a consideration of the student's complete record indicates that the application of a specific regulation will result in an injustice.

Appeals Procedure

Any rule, regulation, or procedure can be appealed. Decisions are based on evidence that the student was treated unjustly or was not afforded the same opportunities as other students. It is not enough to simply claim "nobody told me". You must have quantitative proof that your were misadvised or misinformed by someone on SPSU's staff, or that you were not treated as other students were treated. Your version of the series of events that led to this situation must be clearly articulated and credible. Your evidence does not have to be prima facie, but it must provide enough reasonable doubt that you were afforded proper guidance to make a policy exception for your case.

Grade Appeals

Grade appeals fall into a special category. Grades are assigned by professors based on an evaluation of a student's academic performance. A student who wishes to appeal a grade must present clear evidence that a grade was assigned by some criteria other than an evaluation of academic performance. Appeals that proceed beyond the professor who issued the grade, must be in writing. Check with the Registrar's Office for the procedure to follow.

Catalog and Curriculum Appeals

Matters requiring Petitions to the Faculty include requests for consideration for exceptions to policies published in the catalog or as formal institutional Policies and Procedures. Examples include:

- Receiving a grade of "W" past the withdrawal date
- Extension of the time limit for converting a grade of "I"
- Exceptions to residency requirements

Students should complete a Petition to the Faculty form when they feel the academic policies or procedures have not been applied, or will not apply, fairly or appropriately to them.

Students desiring to petition the faculty for an exception should see the registrar’s office for information on how to proceed.

If the petition is approved, the matter should be resolved. If the petition is denied, and the student feels that he or she has grounds for an appeal, the following steps are followed:

- The student should discuss the petition with the Registrar to determine the basis for refusal, to be informed of the appeals procedure in his or her particular case, and to be informed of any additional information or documentation that may be desirable, helpful, and/or required.

- Upon written request for appeal to the Registrar's Office, all related information is forwarded to the Vice President for Academic Affairs for review. The Vice President may approve or refuse the appeal.

- If the Vice President for Academic Affairs denies the appeal, upon written request to the Vice President for Academic Affairs, the student may appeal to the President. All related information will at that time be forwarded to the President for review.

- The President may approve or deny the appeal. The President is the final level of appeal.

Administrative Procedures Appeals

Matters requiring administrative petitions include requests for consideration for exceptions to established procedures, whether formal or informal. Examples include:

- Adding or dropping classes when registration is not open
- Correcting errors made during registration
- Having a schedule reinstated after it was removed for non-payment
- Having a schedule removed from the system for administrative reasons

Students should complete an administrative petition, available in the registrar's office, when they feel the administrative procedure has not been applied fairly or appropriately to them.

Exceptions to policy are based on evidence that the student was treated unjustly or was not afforded the same opportunities as other students. It is not enough to simply claim "nobody told me". You must have quantitative proof that your were misadvised or misinformed by someone on SPSU's staff, or that you were not treated as other students were treated.

The petition is reviewed and the student is notified of the decision by email. If the student wishes to appeal the decision, a second administrative petition should be initiated and marked as an appeal. A decision will be rendered by the appeal committee and delivered to the student via email.

Administrative Changes

Students are expected to keep the university apprised of changes to their postal address, and phone number. The official means of communication with students is via email. All SPSU students are provided an email account free of charge and are responsible for information and notices that are posted for them.

Classroom Regulations

Classroom Attendance

There are no formal institutional regulations regarding class attendance. Each classroom or laboratory instructor sets his or her own attendance policy. Within the first calendar week of classes, or the first laboratory meeting, of the term the instructor will notify the students in writing of the attendance policy for that class. It is the prerogative of the instructor to determine and impose grade penalties for absences. Students are responsible for all course material covered and any academic consequence of their absences. In some cases, federal and state laws require that attendance be recorded and reported.

Student Activity Absence

Students who are absent because of participation in approved university activities such as field trips and athletic events will be permitted to make up the work missed during their absences. The student is responsible for reporting such absences to the instructor and for arranging with the instructor for make up work. This policy is not to be construed as blanket permission to miss classes and any excessive absence may result in failure of the class.

Late Instructor

Should the instructor be late in meeting a class or a laboratory period, students will wait a minimum of fifteen minutes. If during the fifteen-minute waiting period no notification to remain is given, students may leave without penalty.

Progress Reports

"All faculty members shall make available to each student in their classes each semester, an evaluation of the student's academic progress in the class on or before the mid-date of the term. The evaluation must be in the form of graded/evaluated class assignments, examinations, papers or essays, or projects returned to the students on or before the deadline stated above." Instructors will make every effort to be available during their office hours for discussion of the student's progress in the course prior to the midpoint of the total grading period.

Attendance or participation in a class for which a student has not registered and paid is strictly prohibited without express permission from the office of the registrar.

Disruptive Behavior and Academic Dishonesty

A faculty member reserves the right to remove any student from his or her course if the student's behavior is of a disruptive nature or if there is evidence of academic dishonesty. In instances of disruptive behavior and/or academic dishonesty, the faculty member will discuss the circumstances with the student(s) before taking final action. In the event the student cannot be reached, he or she will be given the grade of "Incomplete" until such time as he or she can be reached. The student shall have the right of appeal of the faculty member's decision

- first to the faculty member's Department Chair
- then to the appropriate school dean,
- and, if necessary, to the Vice President for Academic Affairs

Removal from a course under this provision will result in a grade of "F". A grade of "F" issued under these circumstances shall not be superseded by a voluntary withdrawal, and will be included in the student's cumulative grade point average calculated for graduation purposes.

Registration

Auditing Classes

The following rules apply to Audit courses:

- Audit courses count at full value in determining the number of credit hours for which the student is enrolled.
- No academic credit is granted for audited courses.
- Students may not change a class to or from audit status after the close of the drop-add period.
- The grade assigned for auditing is "V" (visited), and will have no effect upon the student's scholastic average.

Students will not be permitted to receive credit for their participation in a course as an auditor.
Additionally, students who audit a course will not be allowed to receive credit by examination or credit by experience for the same course.

Enrollment Verification and Student Status

Students desiring that their enrollment status be reported to an outside agency such as another university, or an insurance company, should fill out an enrollment verification request form in the registrar's office. Student status shall be reported as follows:

Fall and Spring	**Part-Time**	**Half-Time**	**¾ Time**	**Full-Time**
Undergraduate	Less than 6 Hours	6, 7, or 8 Hours	9, 10, or 11 Hours	12 Hours or More
Graduate	Less than 4 Hours	4 or 5 Hours	6 or 7 Hours	8 Hours or More
Summer Semester				
Undergraduate	Less than 4 Hours	4 or 5 Hours	6 or 7 Hours	8 Hours or More
Graduate	Less then 3 Hours	3 or 4 Hours	5 Hours	6 Hours or more

Note that the federal government and some other agencies have different definitions of student status. For example, without regard to the above table, all undergraduate students must be enrolled in at least 6 hours to qualify for most types of financial aid (HOPE excepted).

Maximum Credit Hours

Students may register for a maximum of:

Fall And Spring	Student Type	Maximum Hours
	Undergraduate	18
	Graduate	12
Summer		
	Undergraduate	14
	Graduate	12
Students On Probation		
	Undergraduate	13
	Graduate	12
For an exception to these maximums, see your academic Department Chair.		

Classification of Students

Credit Hour

Definition of a Credit Hour - One credit hour corresponds to one hour per week of classroom work for a semester, or to three clock hours or its equivalent of laboratory work per week for a semester. Some exceptions exist.

How a Student is Classified - A student is classified at the end of each term on the basis of the number of credit hours earned. The credit hours include all coursework for which the student has earned college level credit at Southern Polytechnic State University, plus any transfer credit accepted by Southern Polytechnic State University.

Hours Earned	**Classification**
0-29	Freshman
30-59	Sophomore
60-89	Junior
90 and above	Senior

Full-time Students
Undergraduate students enrolled for 12 or more credit hours are considered full-time students. Undergraduate students enrolled for 8 or more hours during summer term are considered full-time.

Graduate students enrolled for 8 or more credit hours are considered full-time students. Graduate students enrolled for 6 or more hours are considered full-time during summer term.

Note that the federal government and some other agencies have different definitions of student status. For example, without regard to the above table, all undergraduate students must be enrolled in at least 6 hours to qualify for most types of financial aid (HOPE excepted).

Withdrawal From Classes

Students desiring to withdraw from one or more classes before the midpoint of the term may do so by:

- Completing a Request to Withdraw at the Registrar's Office
- Or withdrawing through the Web-based registration system
- Or by sending a signed fax or letter to the registrar’s office

After doing so, the student will be assigned a grade of "W" for those course(s). While a grade of “W” does not count in the student’s cumulative grade point average, it does count in attempted hours for financial aid purposes and could affect a student’s eligibility for aid if there are repeated withdrawals.

Refunds associated with withdrawals are made only in the case where a student withdraws completely from all classes for a term.
Refunds are based on the date of the withdrawal and are pro-rated. By University System of Georgia rule, refunds are not initiated for withdrawing from a portion of registered classes.

Withdrawing After the Mid-Point
Students who withdraw after the midpoint of the term are not eligible for a grade of "W” except in cases of hardship or extenuating circumstances as approved by the faculty. (See Administrative Procedures for instructions.) Students withdrawing after the withdrawal deadline date receive a grade of "WF" for the course(s), which counts the same as an "F" for grade point purposes.

Grades, Transcripts, Student Records, and Academic History

Changing your major
If any student decides to pursue a different program of study than the one originally listed on the admissions application, the student must officially change majors by:

- Visiting the registrar's office and completing a change of major form
- Or visit the student information system on-line and initiate a change of major.

Note that you must have permission to enter some majors.

Changing your demographic information
Most demographic information such as address or phone number can be changed by the student using the student information system on the World Wide Web. To change your name or social security number, you must visit the registrar's office with appropriate documentation.

Note that the official means of communication between the university and students is email. It is the responsibility of the student to check in the student information system and to check email daily for notices posted to them.

Removal of Previous Major Courses

Students may request deletion of previous major courses for graduation scholastic average and hours purposes by completing a Petition to the Faculty. Students should discuss this action with their program advisor first to determine its benefit potential. All courses that were unique to the excluded program will be excluded under this rule. For example, if a non-core mathematics course is part of the degree requirements for a management degree, and the student requests exclusion, the mathematics course would be excluded along with all management and related courses. Courses included in the University System of Georgia core are not excluded.

Transcript Request

Students must request transcripts in writing from the Registrar's Office. All transcripts will include the entire academic record; no partial or incomplete record will be issued as a transcript. Though transcripts are normally issued promptly, requests should be made several business days before the document is required, particularly at the beginning or end of a semester. A transcript will not be issued when a student's record shows financial indebtedness to the institution. Transcripts may be ordered in person in the Registrar's Office, or by faxing or mailing a signed request.

Transient Authorization

Southern Polytechnic State University students planning to attend another institution for one semester and then return to Southern Polytechnic State University should complete a transient letter authorization form, available in the Registrar's Office.

Cross Registration

Students may not attend Southern Polytechnic State University and another institution concurrently for transfer purposes, except under the cross registration program.

Southern Polytechnic State University participates in the cross registration program established among the member institutions of the Atlanta Regional Consortium for Higher Education (ARCHE). The purpose of cross registration is to provide opportunities for enriched educational programs and experiences by permitting students at any ARCHE institution to take courses at any other member institution. A student may cross-register only for:

(1) Courses for which the student has met the prerequisites and
(2) Courses not offered at the home institution for the given term.

Applications and additional information about cross registration can be obtained from the Registrar's Office.

Withdrawals After the Deadline

A request for a grade of "W" (past the deadline date) is properly made on a Petition to the Faculty form, available in the Registrar's Office.

- The petitions must be completed and signed by the student's instructor(s), instructors' Department Chair(s), and major Department Chair.
- The petition must be accompanied by documentation sufficient to support the extenuating circumstances claimed.

Students will be advised in writing by the Registrar's Office as to the action taken on their petition.

No student will be allowed to withdraw from a course after the final class day of the term except via the petition process.

Students withdrawing from **all** classes during the refund period are entitled to a refund of a portion of the fees paid for the course(s). Students should check the Registration Bulletin to determine the date and amount of refund (if any) available. **No refunds are made for partial withdrawal.**

Student Records

In accordance with the policy of the Board of Regents of the State of Georgia and under the provisions of the Family Education Rights and Privacy Act of 1974, Southern Polytechnic State University maintains various educational records for each matriculating student.

These records are considered confidential and will not be released for use outside the institution without the written consent of the student. Exceptions as authorized by the Act are noted.

Directory Information

Southern Polytechnic maintains student information in various forms. Students who desire that "directory information" not be released without consent should so notify the Registrar's Office in writing. The following may be included as "directory information" unless notification is received to the contrary:

- student's name
- place of birth
- class schedule
- current enrollment status
- dates of attendance
- major field of study
- participation in officially recognized activities and sports
- degrees and awards received
- hometown
- weight and height of
- members of athletic teams
- prior college(s) attended

Policies and procedures

Specific policies and procedures for the maintenance of student records according to the Board of Regents of the University System of Georgia and the test of the Family Educational Rights and Privacy Act of 1974 are available for review in the Registrar's Office.

Destruction of Records

The complete academic record of all matriculating students will become permanent records of the institution. Following the third continuous term of non-enrollment by a student, the nonacademic records will be placed in an inactive, but accessible status. Following the end of the ninth year of inactive status, the nonacademic records will be purged and destroyed by the official responsible for their maintenance.

Students also have the right to file complaints with the FERPA Office of the Department of Education, Washington, D.C., 20201, regarding alleged violations of the Act.

Credit for Duplicate Courses or Dual Credit

Credit may not be awarded for the same course twice, or for courses deemed so similar as to be considered the same. For example, if a student completes PHYS 1111K (Trigonometry based Physics I) and then takes PHYS 2211K (Calculus based Physics I), only one may be counted as hours earned, and only one may be used for graduation purposes.

Credit for Courses Completed More than Ten Years Prior to Graduation

Work completed more than ten years prior to the date of graduation may be credited toward degree program requirements with the approval of the student's major Department Chair, or if the student's enrollment at Southern Polytechnic State University has been continuous since the course was taken.

Continuous Enrollment

To remain continuously enrolled, a student must not have an absence of two or more consecutive terms of matriculation at Southern Polytechnic State University, summer semester included.

Academic Standing

In order to graduate

- An undergraduate student must achieve a cumulative GPA of 2.00
- A graduate student must achieve a cumulative grade point average of 3.00

Dean's List
Undergraduate students who have earned 12 or more hours with a scholastic average of 3.50 or better for the current term and who are not subject to any disciplinary action shall be on the Dean's List, which is published each term by the respective dean of each school.

Dean's Merit List
Undergraduate students who have earned 9 or more hours with a scholastic average of 3.50 or better for the current term and who are not subject to any disciplinary action shall be on the Dean's Merit List, which is published each term by the respective dean of each school.

Good Standing
To be considered in good academic standing:

- An undergraduate student must have a cumulative GPA of 2.00 or better
- A graduate student must have a cumulative GPA of 3.00 or better

Academic Probation
Academic probation is assigned to:

- Undergraduate students whose cumulative GPA falls below 2.00
- Graduate students whose cumulative GPA falls below 3.00

An undergraduate student on probation may register for a maximum of 13 credit hours unless approval of the student's major Department Chair is granted to schedule additional hours (to a maximum of 18).

Continued Probation
A student whose cumulative grade point average remains below 2.00 for two or more consecutive terms of enrollment, but whose term average is 2.00 or higher, may continue enrollment on probation.

A student may continue enrollment while on probation. However, if a student on probation fails to achieve a term grade point average of at least:

- 2.00 for undergraduate students
- 3.00 for graduate students

The student will be placed on Academic Suspension (dismissal for graduate students).

Academic Suspension
An undergraduate student whose semester grade point average is below 3.00 and whose cumulative grade point average is below 3.00 for at least two consecutive terms of enrollment shall be academically suspended for unsatisfactory scholarship.

Transfer students admitted on "academic probation" who do not attain a 2.00 grade point average during their first term of attendance at Southern Polytechnic State University shall be academically suspended for unsatisfactory scholarship.

Reinstatement

Upon the recommendation of the Department Chair, and the approval of the Registrar, students who have been suspended may be reinstated on probation.

Reinstatement after the first and second suspensions shall be approved, provided that the Department Chair recommends approval and provides an academic plan for the student's success.

Reinstatement after a third or fourth suspension shall be approved only after:

- The student has demonstrated clear changes that place proper emphasis on academic achievement
- The student has (in the judgment of the Department Chair and the Registrar, a reasonable chance of progressing normally and eventually graduating.

Students who have been suspended four times and who fail to achieve academic scholarship will be dismissed.
Dismissed students may be reinstated only upon recommendation of an academic Dean.

Grading System

Regular Grades
The following letter grades are used to specify the level of performance in academic courses and are computed into the semester and cumulative grade point averages:

A	Excellent	
B	Good	
C	Satisfactory	
D	Poor	usually must be repeated if required for graduation
F	Failure	course must be repeated if required for graduation
WF	Withdrawal After Deadline	A grade of "WF" in a course is assigned upon official withdrawal after the midpoint of the term, and is counted in the student's scholastic average as a failing grade.

Lab Grades
For subjects including class and laboratory work, both portions are considered essential and the grades on each will be combined at the end of the semester and reported as one. Failure in either class or lab may result in failure of the entire course.

Other Grades
The following symbols are used in the cases indicated but are not included in the calculation of semester or cumulative grade point averages:

I	Incomplete	This symbol indicates that a student was doing satisfactory work but, for **nonacademic reasons** beyond his or her control, was unable to meet the full requirements of the course • An incomplete must be removed during the next term in which the student attends classes • Otherwise the Registrar's Office shall convert the "I" into an "F". Once an incomplete grade is issued, a student should not re-register for the course until the grade becomes permanent, or converts to a permanent grade.
IP	In Progress	This grade indicates that credit has not been given in courses that require a continuation of work beyond the term for which the student signed up for the course. The use of this symbol is approved for thesis and project courses. This symbol cannot be substituted for an I (incomplete).
V	Audit	The "V" grade is assigned when a course has been audited. No credit is given. This grade may not be used at any future date as a basis for receiving course credit.
W	Withdrawal	A grade of "W" is assigned when a student officially withdraws from a course before the midpoint of the term. Courses carrying the "W" grade will not be counted in the student's scholastic average.
S	Satisfactory	This symbol indicates that credit has been given for completion of degree requirements other than academic course work.
U	Unsatisfactory	This symbol indicates unsatisfactory performance in an attempt to complete degree requirements other than academic course work.

Cumulative Grade Point Average

Computing the GPA
The cumulative grade point average determines the student's scholastic standing. The cumulative grade point average is computed by dividing the total quality points earned by the total number of credit hours for which the student has received a final grade of "A", "B", "C", "D", "F", or "WF".

Courses Taken at Other Institutions
Only courses taken at Southern Polytechnic State University, or courses completed under the cross-registration program, are computed in the cumulative grade point average. Credits earned at other institutions, credit by examination, credits for which quality points are not assigned, institutional credit courses, and courses otherwise excluded by institutional policy are not considered when calculating the cumulative grade point average for graduation purposes.

Quality Points are assigned as follows:

Grade	Quality Points
A	Four quality points are assigned
B	Three quality points are assigned
C	Two quality points are assigned
D	One quality point is assigned
F	Zero quality points are assigned
WF	Zero quality points are assigned

Graduate student grade point averages, for the purpose of remaining in good standing or graduating from a program are computed using only those courses in the major department and those courses approved by the program faculty.

Grade Changes

Grades that have been assigned to a student by an instructor may be changed no later than the end of the third consecutive term following the term in which the grade was awarded. The instructor must initiate grade changes. Grades included in this provision are "A", "B", "C", "D", "S", "U", and "F".

Grade Reports

Grades are reported to students by way of the student information system. Grade reports are not mailed.
Students who desire a written grade report may obtain one by written request to the registrar’s office.

Repeat Courses

Students are free to repeat courses as many times as they like. However, after a grade of “C” has been earned (or a grade that is acceptable for graduation), repeated courses will not count in the cumulative grade point average nor will the hours count toward graduation.

For the purposes of the repeat rule, courses that are transferred in are considered to have been completed with a grade of “C”.

A student may not use the same course more than once in satisfying graduation requirements.

Academic Renewal

Undergraduate students who have been readmitted or reinstated after a period of absence of five (5) calendar years or longer are eligible for academic renewal, provided they have not attended any post-secondary school during the five years. Academic renewal for the student signals the initiation of a new grade point average to be used for determining academic standing.

This provision allows University System of Georgia degree-seeking students who earlier had experienced academic difficulty to make a fresh start and have one final opportunity to earn an associate or bachelor's degree.

For complete details about this policy, see the Registrar's Office.

Policy for Acceptance of Transfer Credit

Transfer credit is awarded in accordance with the policies of the university system of Georgia, accrediting agencies, and SPSU. Courses under consideration for transfer credit are evaluated by the department chair whose department is primarily responsible for the course.

Transfer credit should not be confused with course substitutions. A course might not be equivalent to any course offered at SPSU, but still have enough content to be considered as a substitute for a course within a degree program. Transfer credit would be awarded for free elective hours and a course substitution petition would be initiated and processed through the curriculum committee.

To be considered for transfer credit, courses must normally:

- Represent college or university-level work
- Have been completed with a grade of "C" or better
- Have been taken at institutions holding college-level accreditation by a United States regional accrediting authority.
- Be equivalent to courses at SPSU with regard to
    - Credit hours
    - Course content
    - Level of instruction
- Not have been in a subject for which the student received a failing grade at SPSU

Special considerations for transfer of University System of Georgia (USG) Core Curriculum courses:
Students completing a given area (A,B,C,D,E, or F) will be given full credit when transferring to a different institution if the major field of study remains the same.

In Area A, students will receive transfer credit for all satisfactorily-completed courses, regardless of whether the entire Area has been completed.

Grades of "D" are transferable for all USG courses except:

- ENG 1101 requires "C" or better
- MATH 1111 requires "C" or better
- MATH 1113 requires "C" or better

If students transfer the entire USG Core (60 semester hours) for a given major (without changing majors), the total credit hours required for the transfer student's baccalaureate degree at SPSU will not exceed the total credit hours required for a student who completed the USG Core at SPSU in that same major.

Evaluation of Courses for Transfer Credit
In order for SPSU to perform an evaluation of transfer credits, the student

- must provide official transcripts containing all the courses being considered,
- must be accepted for admission to SPSU,
- must provide course descriptions, syllabi, or other documentation on course content if requested by SPSU, and
- can be tested for proficiency in courses that were not USG Core courses.

The amount of transfer credit awarded can be limited by:

- Residency requirements defined in Academic Regulations
- The applicability of transferring courses to the chosen major
- Performance of the student during proficiency evaluations

Responsibility for transfer credit decisions at SPSU:

The Student has responsibility for providing complete and correct information (including course descriptions, syllabi, and other required documents).
The Chair of the department at SPSU in which the subject is taught has responsibility for determining whether transfer credit will be awarded.
The Chair of the student's major program of study has responsibility for determining whether transfer courses are applicable to that degree program.
The Registrar is responsible for determining restrictions and limits on amounts of transfer credit that can be granted.
The Registrar has final authority in checking compliance with university-wide academic standards and graduation requirements.

Additional Information for Students Transferring from Outside Georgia
Students who transfer to Southern Polytechnic State University from an institution located outside the State of Georgia and who have completed U.S. History or American Government must complete HIST 2911 with a grade of "C" or better to receive transfer credit for HIST 2111 or 2112, or POLS 1101.

Transfer Credit for Courses Earned Outside the United States
Transfer credit for courses completed at institutions of higher learning outside the United States shall be subject to the same criteria as those courses earned in the United States, but outside the State of Georgia.

In addition, the following conditions must also be met by the institution where the credits were earned:

International course descriptions must have been translated by a recognized translation service and certified as a true and correct translation.

The institution at which the credit was earned:

- Must have been evaluated and endorsed/certified/accredited by a nationally-known evaluation agency,
- Must be offering degrees and course work at the college or university level, and
- Must have a well-established international reputation for quality instruction.

Credit by Examination

Awarded at the Discretion of the Department Chair
Student evaluation by standardized and/or program examinations may be used at the discretion of the Department Chair as a basis for awarding credit for some courses. These evaluations are available only to currently enrolled students. A fee will be charged before the evaluation.

In order to receive credit by examination:

- Check with the appropriate Department Chair about the applicability of credit by examination to the course(s) under consideration
- If credit by exam is appropriate, obtain a Request for Credit by Examination form from the Office of the Registrar, complete it and pay the requisite fee at the Business Office
- The Business Office will validate the form, and it should then be submitted to the Department Chair who is responsible for the course(s) in question

After the evaluation, the Department Chair will make his or her recommendation for credit to the Registrar's Office. The Registrar will notify the student in writing of the final disposition of the credit.

Credit by exam or by experience may not be awarded for a course previously failed or audited at SPSU.

Regents' Testing Program

Why a Regents' Test
The Board of Regents of the University System of Georgia has directed that all students who participate in a program that leads to an undergraduate degree will demonstrate proficiency in reading and writing. Students should participate in the test as soon as they finish English Composition II. If they have not passed the test before they earn 45 hours of credit, they must enroll in Regents' Remedial courses until they do pass the test.

Key Points
Detailed information on rules governing this policy can be found in SPSU's policy and procedure manual, or can be obtained from the Registrar's Office. Key points of the program are:

- Students must take the test in their first semester of enrollment after earning 30 credit hours if they have not taken it previously.
- Students who have not passed both parts of the test by the time they have earned 45 credit hours are required to take the appropriate remedial course or courses each semester of enrollment until they have passed both parts.
- Students who have been classified as non-native speakers of the English language by the Regents' Testing Program Coordinator may opt for an alternate version of the Regents' Test.
- Transfer students with 30 or more semester credit hours transferring from outside of the System or from a System program that does not require the Regents' Test should take the test during their first semester of enrollment in a program leading to the baccalaureate degree. Those who have not passed before their third semester of enrollment are subject to remedial requirements.
- A student holding a baccalaureate or higher degree from a regionally accredited institution of higher education will not be required to complete the Regents' Test in order to receive a degree from a University System institution.

The Board of Regents has recently added new rules that provide for the use of ACT, SAT, IB, AP and other scores in lieu of taking the regents' test. If you want to see if you qualify for this exemption, visit the Registrar's Office.

Graduation

Graduation Requirements

Catalog for Graduation Evaluation

- A student may elect to be evaluated for graduation from any catalog in effect during the time he or she has been enrolled, provided that enrollment has been continuous.
- Students readmitted or reinstated will be evaluated for graduation from the catalog in effect at the time of readmission or reinstatement, or any catalog in effect during subsequent periods of continuous enrollment.
- Students changing majors will be evaluated for graduation from the catalog in effect at the time of the change, or any catalog in effect during subsequent periods of continuous enrollment.
- Each student is responsible for determining the appropriate catalog to be used for academic advisement and for evaluation of graduation requirements. Catalog selection applies only to the course requirements of that catalog; all other academic procedures and graduation requirements must be satisfied according to regulations in effect at the time of graduation. For further information on the selection of an appropriate catalog, contact your major Department Chair or the Registrar's Office.

General Requirements

A student is eligible for graduation when he or she:

- Has satisfactorily completed the required number of hours for the degree
- Has passed all required courses for the degree
- Has achieved the necessary scholastic average (2.00 for undergraduates; 3.00 for graduates)
- Has paid all required fees, fines, and other financial obligations
- Has filed an official "Petition of Admission to Candidacy for a Degree" through the Department Chair to the Registrar's Office
- Has passed the Regents' Test (for an undergraduate degree)
- Has passed an examination on U.S. and Georgia History, and the provisions of the Constitutions of the U.S. and the state of Georgia (Credit for U.S. History, American Government, or Political Science satisfies this requirement; undergraduate degree only)
- Has satisfied any program related requirements
- Has merited the recommendation for the degree by the faculty and the President of the university
- Has earned 25% of the total hours required for the degree in residence at SPSU
- Has earned in residence at SPSU the last
  (Transient coursework does NOT count as resident work)
  20 credit hours required for an associate degree
  30 credit hours required for a bachelor's degree
  45 credit hours required for a bachelor of Architecture degree

Graduation Petitions

A student must submit a formal petition for "Admission to Candidacy for a Degree" to their academic department in accordance with the deadline published in the academic bulletin.

All fall semester petitions for students not in school summer should be made in the Spring semester of that year, and co-op students should petition the term before a work term if the work term immediately precedes the term of anticipated graduation.

Students are allowed and encouraged to petition early.

Earning a Second Bachelor's Degree or a Dual Major

Students who complete requirements for a second bachelor's degree may either declare a dual major or earn two diplomas. Though subtle, the difference is distinct. If a student declares a dual major and completes the degree requirements for both majors, he or she would petition for graduation on a single form and would receive a single diploma with both majors listed. Each academic department must then process the petition.

If a student would rather have a second diploma, the student must apply for graduation using two separate forms. Each form must be accompanied by the graduation petition fee and each must be processed by the appropriate academic department.

To obtain a second bachelor's degree from Southern Polytechnic State University:

- A student must complete all required courses for the degree
- And earn credit for a total of at least 30 hours in excess of the requirements for any previous SPSU degrees earned.

Requirements for a dual major are listed in the Curricula sections. However, in general, there are specific courses that must be completed and the above criteria must be met. Currently, only mathematics and physics offer dual majors.

Honors

To graduate with honors, a student must have earned a minimum of 40 hours (in residence) for the associate degree and a minimum of 60 hours (in residence) for the bachelor's degree. The follow GPA's apply to honors:

Honor	Minimum Scholastic GPA
Summa Cum Laude	3.90
Magna Cum Laude	3.70
Cum Laude	3.50

Graduating with honors should not be confused with participating in the honors program (participation in classes designated as honors classes).

Courses in a Minor

To receive a minor, a student must complete at least six hours of the upper division requirements for the minor at Southern Polytechnic State University. Transfer credit may be used to satisfy the other requirements for the minor. Specific courses for minors are listed at the end of the curricula section of this catalog.

Certificate Programs

Students admitted to a certificate program may apply the courses completed for the certificate toward a degree program if they are accepted to a degree program. Students admitted to a degree program may be awarded a related certificate based on completion of the courses in the certificate program provided they also apply for the certificate.

Curriculum and Programs of Study

General Organization

If you are a student at SPSU, you have a major and are assigned to an academic department for advising and related academic matters. Your department is, in turn, assigned to an academic unit known as a "school". SPSU has four schools. The table below indicates which departments and majors are assigned to the four schools.

The School of Architecture, Construction, and Civil Engineering Technology	
Department Name	**Majors and Degree Types**
Architecture	Architecture (BARCH)
Construction	Construction (BS, MS)
Civil Engineering Technology	Civil Engineering Technology (BS) Surveying and Mapping (BS)
The School of Arts and Sciences	
Biology, Chemistry, Physics	Biology (BS) Physics (BA, BS)
Humanities and Technical Communication	International Technical Communications (BA) Technical and Professional Communication (BS) Information Design and Communication (MS) General Studies (AS)
Social and International Studies	International Studies: Global Technology (BS)
Mathematics	Mathematics (BA, BS)
The School of Computing and Software Engineering	
Computer Science	Computer Science (BA, BS, MS)
Information Technology	Information Technology (BSIT, MSIT)
Software Engineering	Software Engineering (BSSWE, MSSWE)
The School of Engineering Technology and Management	
Industrial Engineering Technology	Industrial Engineering Technology (BS) Apparel/Textile Engineering Technology (BS) Quality Assurance (MS) Systems Engineering (MS)
Mechanical Engineering Technology	Mechanical Engineering Technology
Electrical and Computer Engineering Technology	Electrical Engineering Technology (BS) Computer Engineering Technology (BS) Telecommunications Engineering Technology (BS) Engineering Technology – Electrical (MS)
Management	MBA (MBN) Management (BS) Applied Science (BAS)

Core Curriculum

The University System of Georgia Common Core is designed to make transfer from one system institution to another as smooth as possible with a minimum of credit loss.

Principles Across the Core that are Common to All Institutions
Each Institution's core curriculum will:

- Encourage the development of written and oral communication skills and critical thinking within the broader academic context.
- Permit opportunities for interdisciplinary learning.
- Include offerings that reflect the special characteristics of the institution.
- Feature international components that increase global awareness and introduce the student to different cultural perspectives.
- Include an informed use of information technology.
- Employ pedagogy designed to increase intellectual curiosity and to initiate a continuing interest in the subject matter.
- Feature courses that are challenging and rigorous and provide learning experiences that distinguish a field.
- Introduce the methods used by technical and scientific professionals such as the evaluation of empirical data, problem recognition, problem definition, the application of scientific principles, and logical problem solving.
- Be cohesive and provide entry to both specialized studies in the student's chosen field and remaining courses (whether upper or lower division) in the institution's general education curriculum.
- Be designed with the assumption that students have met all admissions standards to the institution (with appropriate academic support provided for those who have not).

Curriculum Framework for the Common Core

A. Essential Skills (9 hours)
The following courses shall have common course numbers throughout the University System. Each course in this section (A) shall be three semester hours:

- English Composition I
- English Composition II
- College Algebra (or) Mathematical Modeling (or another course approved by the Undergraduate Council)

More advanced mathematical courses may be required for certain majors and/or institutions with the approval of the Undergraduate Council.

Transfer: Course-by-course. Any higher-level course or more advanced requirements must apply equally to native and transfer students.

B. Institutional Options (4-5 hours)
Courses approved by the Undergraduate Council which address institution-wide general education outcomes of the institution's choosing. Examples include, but are not limited to, global issues, oral communication, information technology, critical thinking, wellness, geography, and foreign languages.

Transfer: If B is completed, the receiving institution must accept this area in its entirety. If the area has not been completed, the receiving institution must require the student to take additional course work to complete the necessary hours. However, **this area is not to exceed seven semester hours at all institutions**.

Receiving institutions must accept any approved course in this area whether or not the course exists at the receiving institution.

C. Humanities/Fine Arts (6 hours)
Courses which address humanities/fine arts learning outcomes and which the Undergraduate Council has approved. Interdisciplinary courses are acceptable.

Transfer: If C is completed, the receiving institution must accept this area in its entirety. If the area has not been completed, the receiving institution must require the student to take additional course work to complete at least six semester hours. However, **this area is not to exceed eight semester hours** at all institutions. Receiving institutions must accept any approved course in this area whether or not the course exists at the receiving institution.

D. Science, Mathematics, and Technology (10-11 hours)
Courses approved by the Undergraduate Council that address learning outcomes in the sciences, mathematics, and technology. These need not be sequential courses. Interdisciplinary courses are acceptable.

Students complete one of two options:

Option I - Non-Science Majors

- A four-hour laboratory or a three or four-hour non-laboratory course, and
- A four-hour laboratory course
- Three additional credit hours in mathematics, science, or technology

Option II - Science Majors

- Two four-hour laboratory courses
- Three additional credit hours in mathematics, science, or technology

Transfer: Course-by-course. Receiving institutions must accept any approved course in this area. If D is completed, the receiving institution must accept this area in its entirety.

E. Social Sciences (12 hours)
Courses approved by the Undergraduate Council which address learning outcomes in the social sciences including, but not limited to, history and American government. Interdisciplinary courses are acceptable. If credit course work is used to satisfy the U.S./Georgia history and constitutions requirement, course(s) shall be part of this area.

Transfer: If E is completed, the receiving institution must accept this area in its entirety. If it has not been completed, the receiving institution must require the student to take additional course work to complete at least twelve hours. However, this area is not to exceed fourteen semester hours at all institutions. Receiving institutions must accept any approved course in this area whether or not the course exists at the receiving institution.

F. Courses Related to the Program of Study (18 hours)
Lower-division courses related to the discipline(s) of the program of study and courses which are prerequisite to major courses at higher levels.

The Undergraduate Council will develop guidelines for acceptable courses in this area after appropriate consultation with faculty in the relevant disciplines.

Transfer: Course by course. If F is completed, the receiving institution must accept this area in its entirety.

Core Courses

Listed below are Southern Polytechnic State University core-curriculum courses and the credit hours for those courses.

AREA	COURSE		TITLE	HOURS
Area A				
Essential Skills **Three Courses are Required**				
All students must complete Composition I and II and either Math 1111 or Math 1113 depending on their major.				
Take both English classes and one mathematics class, depending on your major.	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1111	College Algebra	3
	or			
	MATH	1113	Pre-calculus	4
NOTE: MATH 1113 is required for students majoring in architecture, biology, computer science, engineering technology, international studies, management, mathematics, and physics.				
			Area Total is 9 or 10 Hours depending on major	

Area B				
Institutional Option **Two Courses Are Required**				
All students must complete Speech 2400 and Science, Technology, and Society 2400.				
Take both of these.	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
				Area Total is 4 Hours

Area C				
Humanities/ Fine Arts Two Courses Are Required				
All students must complete <u>One Course From Each of the Following Two Groups</u> for a total of two courses.				
	Literature of the World			
Take one of these five courses.	ENGL	2110	World Literature	3
	ENGL	2120	British Literature	3
	ENGL	2130	American Literature	3
	ENGL	2141	Western Literature I	3
	ENGL	2142	Western Literature II	3
	Art and Culture of the World			
Take one of these six courses.	ARTS	2001	Art Appreciation	3
	ARTS	2002	Drama Appreciation	3
	ARTS	2003	Music Appreciation	3
	FREN	1002	Elementary French II	3
	GRMN	1002	Elementary German II	3
	SPAN	1002	Elementary Spanish II	3
				Area Total is 6 Hours

Area D				
Science, Mathematics, and Technology Three Courses are Required				
All students must complete <u>two courses</u> from the sciences group <u>and one course</u> from the mathematics group.				
	Sciences Group			
Take any two courses from this list of nine courses for a total of 8 hours	ASTR	1000K	Introduction to the Universe	4
	BIOL	2107K	Biology Principles I	4
	BIOL	2108K	Biology Principles II	4
	CHEM	1211K	Principles of Chemistry I	4
	CHEM	1212K	Principles of Chemistry II	4
	PHYS	1111K	Introductory Physics I	4
	PHYS	1112K	Introductory Physics II	4
	PHYS	2211K	Principles of Physics I	4
	PHYS	2212K	Principles of Physics II	4
	Mathematics Group			
Take one from this list of three courses for a total of 3 or 4 hours	MATH	1113	Pre-calculus	4
	MATH	2240	Survey of Calculus	3
	MATH	2253	Calculus I	4
				Area Total is 11 or 12 Hours

Area E					
Social Sciences	**Four Courses Are Required**				
All Students must complete <u>one course from each of the following four groups</u>					
	American Context Group				
Take one of these three.		HIST	2111	U.S. History I	3
		HIST	2112	U.S. History II	3
		POLS	1101	American Government	3
NOTE: Any of the above three courses will satisfy the legislative requirements for U.S. Constitution and Georgia History.					
	World History Group				
Take one of these three.		HIST	1011	World Civilization: Ancient	3
		HIST	1012	World Civilization: Medieval	3
		HIST	1013	World Civilization: Modern	3
	Behavioral Sciences Group				
Take one of these two.		ECON	1101	Introduction to Economics	3
		PSYC	1101	Introduction to General Psychology	3
	Cultures and Societies Group				
Take one of these five.		ANTH	1102	Introduction to Anthropology	3
		ES	1100	Ethnic Studies	3
		GEOG	1101	Introduction to Human Geography	3
		POLS	2401	Global Issues	3
		RELG	1200	World Religion	3
					Area Total is 12 Hours

Area F	
Courses Related to the Major Program of Study	
See the curriculum for your particular major for the required courses in this area.	
NOTE: The additional hours in Areas A and D carry over to Area F or general degree requirements.	
	Area Total is 18 Hours.
Total Hours for USG CORE	60

School of Architecture, Civil Engineering Technology, and Construction

Offering

Bachelor of Architecture
Bachelor of Science in Construction
Bachelor of Science in Civil Engineering Technology
Bachelor of Science in Surveying and Mapping
Masters of Science in Construction

SCHOOL OF ARCHITECTURE, CIVIL ENGINEERING TECHNOLOGY, AND CONSTRUCTION

The School of Architecture, Civil Engineering Technology, and Construction offers degrees in those three disciplines and in the related major of Surveying and Mapping. In addition, there is a Masters degree in Construction.

The undergraduate degree in Architecture is fully accredited by the NAAB; that in Civil Engineering Technology by the ABET; and, that in Construction by the ACCE. Graduates of these programs are sought by industry on the basis of the reputation established by their predecessors from the earliest beginnings of the university. Graduates and the programs are nationally known. This contributes to a cosmopolitan student body with a strong Georgia base.

There are increasing opportunities for international exchange, e.g., semester studies abroad in the various disciplines. State of the art instructional technology and professors with extensive experience as practicing professionals characterize the programs. Certificates are available in certain disciplinary tracks. Selected classes are presented in a distance-learning environment using the Internet.

Students are active in regional and national competitions where they frequently achieve high ranking and recognition among their disciplinary peers from top schools throughout the country. Classes are offered both in the day, for traditional students, and in the evening to accommodate students who have employment obligations.

Architecture

Offering
Bachelor of Architecture

Architecture

The mission of the Architecture Program at Southern Polytechnic State University is to expand and extend the university mission into the realm of architecture. The program prepares students for professional practice in the design, planning, development, and stewardship of the built environment.

The Design Foundation
The Design Foundation sequence is an introduction to the issues and processes used by professional designers of the built environment. Students demonstrate their understanding of course material through exercises and simulated design projects. A basic understanding of these factors is provided in the Design Foundation, which constitutes the first two years of the Bachelor of Architecture degree program.

Computer Requirements
All students in the School of Architecture are required to have a lap top computer for their individual use by the beginning of the second year. Published requirements for the computer and software are available in the reception office of the Architecture Department.

Transfer Students
Transfer students may apply for admission to the program. All transfer students coming from an NAAB accredited program may submit a portfolio for approval to the Architecture Department Admissions Committee no later than 5:00 PM on the second Friday of May for possible advanced standing in the Architecture program. Any transfer student who is accepted and chooses not to submit a portfolio will be placed in the first DFN studio. Transfer students must have a minimal transferring GPA. They must also have current, formal acceptance to Southern Polytechnic State University and meet the University requirements regarding transfer status. Prospective transferring students may receive further specific information regarding the application process and applicable dates directly from the Architecture Department. All decisions regarding acceptance into the Architecture Program are final.

Bachelor of Architecture
The Bachelor of Architecture program is a fully accredited program by the National Architectural Accrediting Board. It is a 2 plus 3 program consisting of the Design Foundation, the first two years, and the Professional Program for the last three years. The study of architecture involves good detailing and translating abstract thought. The entire program is based on integration of foremost students into an enthusiastic, practical program of study. The professional program places emphasis on enhancing the understanding of the relationship of people and their physical environment, and the synthesis of this complex information into relevant design solutions. The program is a combination of building and environmental technology, professional practice, architectural electives and a rigorous sequence of design studios geared to exceptional students.

Accreditation
The following statement is required by the National Architectural Accrediting Board to be included in all catalogs and promotional materials of accredited program.

In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Masters degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself, recognized as an accredited degree.

Professional Program
The Professional Program is comprehensive and rigorous. The Professional Program includes students who have successfully completed the two-year sequence of Design Foundation and who demonstrate exceptional professional promise.

To be admitted to the Professional Program from the Design Foundation, a student should have a minimum grade point average (GPA) of 2.5 in all course work.

Special Grading Standard
All Design Foundation and Architecture courses must be taken in sequence. Students in the Architecture curriculum must achieve a minimum of 2.00 grade point average (GPA) in studio course sequence before proceeding into the next sequence of studios. Any student who fails to achieve a minimum GPA of 2.00 in a sequence must repeat all courses in which the student received a grade of "D" or "F" until his/her GPA is 2.00 or above.

Architecture students within the Professional sequence must maintain passing grades in all classes within any given semester in order to advance into the following semester. This is in addition to maintaining a GPA of 2.00.

Student Work
All student work executed in the Architecture Department becomes the property of the Department and will be returned at the discretion of the faculty. The faculty also reserves the right to refuse credit for any work that was executed outside the precincts of the Department or otherwise executed without coordination with the faculty.

Bachelor of Architecture						
Area A Essential Skills						9 hours
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (extra hour is applied to area F)			4
Area B Institutional Options						4 hours
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts						6 hours
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology						11 hours
	MATH	2253	Calculus I (extra hour is applied to area F)			4
	Area D		Lab Sciences – Physics is Recommended			8
Area E Social Sciences						12 hours
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F						18 Hours
	DFN	1001	Design Foundation I	0	12	4
	DFN	1002	Design Foundation II	0	12	4
	DFN	2003	Design Foundation III	1	9	4
	DFN	2004	Design Foundation IV	0	9	3
	DFN	2211	Introduction to Structures	3	0	3
Required Courses						90 Hours
			Approved Electives (The extra hours from Areas A and D are applied here)	18	0	18
	ARCH	3011	Architecture Studio I	1	9	4
	ARCH	3012	Architecture Studio II	1	9	4
	ARCH	3112	Architecture Culture II	3	0	3
	ARCH	3113	Architecture Culture III	3	0	3
	ARCH	3211	Building Technology I	2	0	2
	ARCH	3212	Building Technology II	2	3	3
	ARCH	3221	Environmental Technology I	1	3	2
	ARCH	3311	System Selection & Documentation	2	3	3
	ARCH	4013	Architecture Studio III	0	12	4
	ARCH	4014	Architecture Studio IV	0	12	4
	ARCH	4114	Architectural Theory I	2	0	2
	ARCH	4115	Architectural Theory II	2	0	2
	ARCH	4213	Building Technology III	2	0	2
	ARCH	4214	Building Technology IV	2	0	2
	ARCH	4223	Environmental Technology III	2	3	3
	ARCH	4312	Codes	2	0	2
	ARCH	5015	Architecture Studio V	1	9	4
	ARCH	5116	Urban Planning and Design Theory	2	0	2
	ARCH	5313	Professional Practice and Ethics	3	0	3
	ARCH	5593	Diploma Project Research	2	3	3
	ARCH	5999	Diploma Project	1	12	5
	ARCH	3222	Environmental Technology II	2	3	3
	DFN	1000	School of Architecture Orientation	2	0	2
	DFN	2111	Architecture Culture I	3	0	3
	DFN	3241	Computer Application in Architecture	1	3	2
Degree Program Total						150

In preparation for the Building and Environmental Technology courses, the Architecture Department recommends all architecture students take Physics for their laboratory science.

NOTE: For more information about Areas C, D, and E courses, see the "Core Curriculum" section under "Admission Information."

Civil Engineering Technology

Offering
Bachelor of Science in Civil Engineering Technology
Bachelor of Science in Surveying and Mapping

Civil Engineering Technology

(Bachelor of Science Degree Offered)

Civil Engineering Technology is a broad field producing engineering technologists with versatile backgrounds. Southern Polytechnic State University graduates have the qualifications to enter careers in:

- Construction
- Surveying
- Geotechnical
- Site development
- Structural design
- Transportation
- Urban Planning
- Environmental technologies

A student may select elective courses from the areas of:

- Environmental
- Structural
- Surveying
- Transportation
- Geotechnical

Environmental electives prepare graduates for analysis and design of systems and facilities to correct or control the pollution of air, land, or water. For example, design of water and wastewater plants, and solid waste disposal facilities. Many career opportunities exist with municipalities, industry, consulting firms and governmental agencies.

Structural electives prepare graduates for design, plan preparation, construction, and inspection of modern buildings and bridges and other structures. In their coursework, students analyze and design structural members of steel, reinforced concrete and other engineering materials.

Surveying electives are available in:

- Boundary
- Topographic
- Geodetic
- Route
- Construction surveying

In laboratories for these courses, students utilize state-of-the-art surveying equipment (including theodolites, total stations, GPS units, and field-to-plot systems) in developing maps, designing and laying out construction projects and in planning land development for residential and commercial enterprises.

Transportation electives prepare graduates to perform design and plan maintenance of all types of transportation facilities including streets, highways, mass transit systems, railroads, airfields, ports, harbors and pipelines.

Geotechnical electives prepare graduates to perform subsurface investigations, and field and laboratory tests; and design and analysis for civil engineering works such as foundations, dams, and tunnels.

Professional Registration

Professional Engineer: In Georgia and approximately 35 other states in the U.S., the BS-CET degree along with the appropriate number of years of experience, and the passage of two 8-hour examinations (FE and PE), qualifies a graduate to become a licensed Professional Engineer (PE). The FE exam can be taken while a senior enrolled in the CET curriculum.

Licensed Land Surveyor: CET majors whose curriculum contains at least 6 elective hours of surveying coursework meet the educational requirements to become licensed as a Professional Land Surveyor (PLS) in Georgia. In addition, they must obtain 4 years of acceptable experience and pass the FLS and PLS examinations.

Civil Engineering Technology Bachelor of Science						
Area A Essential Skills			9 hours			
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (extra hour is applied to area F)			4
Area B Institutional Options			4 hours			
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts			6 hours			
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology			11 hours			
	MATH	2253	Calculus I (extra hour is applied to major courses)			4
	Area D		Any Two Lab Sciences			8
Area E Social Sciences			12 hours			
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F (The extra hour from area A is counted here)			18 Hours			
	CET	2160	Civil Graphics and Computer Aided Drafting			3
	ENGL	2010	Technical Writing			3
	MATH	2254	Calculus II			4
	MATH	2306	Differential Equations			3
	PHYS	2211K	Principles of Physics I			4
Required Courses (One hour from area D applied here)			58 or 59 hours			
	CET	1001	Orientation to CET Profession	1	0	1
	CET	1002	Orientation to CET Computer Practices	0	2	1
	ENGR	2214	Engineering Mechanics – Statics	3	0	3
	CET	2215	Engineering Mechanics – Dynamics	2	0	2
	CET	2219	Strength of Materials	3	3	4
	CET	3301	Soil Mechanics	3	3	4
	CET	3302	Construction Materials	3	3	4
	CET	3321	Transportation Systems	3	3	4
	CET	3324	Project Cost Analysis	4	0	4
	CET	3343	Fluid Mechanics	3	3	4
	CET	3344	Fundamentals of Environmental Eng Tech	3	3	4
	CET or CET	3371 3381	Structural Steel Design I Reinforced Concrete Design I	2	3	3
	CET	4480	Senior Project	3	3	4
	CET	4444	Hydrology	3	3	4
	ECET or MET or MET	3000 3400 3401	Electrical Principals Survey of Thermodynamics Thermodynamics I	3 3 3	3 0 0	4 3 3
	SURV	2221	Surveying I	3	3	4
	CET	3316	Structural Analysis	4	0	4
CET Elective*						11 or 12
Degree Program			Total130			

Students are advised to take Chemistry I, Physics I, and either Chemistry II or Physics II as partial fulfillment of Area D and F requirements.

NOTES: CET students are required to earn a grade of "C" or better in all courses required in the major and all courses used as CET electives. Students are required to earn a GPA of 2.0 or better in all CET courses.

For more information about Area C, D, and E courses, see the "Core Curriculum" section under "Admission Information."

CET Electives are any non-required 3000 or 4000 level CET/SURV courses. Up to 6 hours of SURV 3XXX and 4XXX courses may be used for CET electives.

Surveying and Mapping

(Bachelor of Science Degree Offered)

The Surveying and Mapping program is offered through the Civil Engineering Technology Department. Students in Surveying and Mapping are taught the principles and techniques of field measurements and adjustments, boundary, topographic, geodetic, route and construction surveys.

Students apply classroom knowledge in laboratory exercises with modern surveying equipment including theodolites, electronic total stations, robotic instrumentation, Global Positioning System (GPS) satellite receivers, and optical alignment devices. Mapping topics include Geographic Information Systems (GIS), photogrammetry and remote sensing.

In laboratories, students develop maps from field measurements, design and layout construction projects, plan subdivision developments and establish horizontal and vertical control using satellite geodesy. Microcomputers are used extensively in reducing data, planning field layouts, plotting boundaries, drawing (CAD) plats and map production.

Students also study topics from the Civil Engineering Technology program including elementary structures, fluid mechanics, hydrology and the design and construction of highways. Courses in mathematics, business principles and core requirements provide the student added depth.

The program exceeds the State of Georgia academic registration requirements to become a Registered Land Surveyor.

NOTE: Students are required to earn a grade of "C" or better in all required and elective major courses and a GPA of 2.0 or better in all SURV and CET courses.

Surveying and Mapping Bachelor of Science						
Area A Essential Skills			9 hours			
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (extra hour is applied to area F)			4
Area B Institutional Options			4 hours			
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts			6 hours			
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology			11 hours			
	MATH	2253	Calculus I (extra hour is applied to major courses)			4
	Area D		Any Two Lab Sciences			8
Area E Social Sciences			12 hours			
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F (The extra hour from area A is counted here)			18 Hours			
	CET	2160	Civil Graphics and Computer Aided Drafting			3
	ENGL	2010	Technical Writing			3
	MATH	2254	Calculus II			4
	PHYS	1111K	Principles of Physics I			4
	IT	1113	BASIC Programming			3
		OR				
	CS	2123	C Programming			3
		OR				
	CS	2143	FORTRAN Programming			3
Required Courses			70 hours			
			Math Elective	3	0	3
			Free Elective (1 hour from core applied here)			4
	CET	1001	Orientation to CET Profession	1	0	1
	CET	1002	Orientation to CET Computer Practices	0	2	1
	CET	2200	Introduction to Structures	4	0	4
	CET	3321	Transportation Systems	3	3	4
	CET	3343	Basic Fluid Mechanics	3	3	4
	CET	4444	Applied Hydrology	3	3	4
	CET	3324	Project Cost Analysis	4	0	4
	MATH	2260	Probability and Statistics I	3	0	3
	PHYS	1112K	Introductory Physics II	3	2	4
	SURV	2221	Surveying I	3	3	4
	SURV	3222	Surveying II	3	3	4
	SURV	4410	Surveying Computations and Adjustments	3	3	4
	SURV	3421	Geographic Information Systems I	3	3	4
	SURV		Elective			4
	SURV	4465	Legal Aspects of Land Surveying	4	0	4
	SURV	4470	Land Development Design	3	3	4
	SURV	4415	Geodetic Surveying Methods	3	3	4
	SURV	4475	Land Surveying Practice	1	3	2
Degree Program Total						130

Certificate in Land Surveying

The Land Surveying Certificate program is designed to prepare surveyors with the basic education necessary to take the Fundamentals of Land Surveying Exam and exceeds the State of Georgia academic registration requirements to become a Registered Land Surveyor. There are six courses required in the certificate program.

Required Courses (22 - hours)				
	SURV	2221	Surveying I	4
	SURV	2250	Applied Hydrology for Surveyors	4
	SURV	3222	Surveying II	4
	SURV	4465	Legal Aspects of Land Surveying	4
	SURV	4475	Land Surveying Practice	2
	SURV	4470	Land Development Design	4
TOTAL			22-Hours	

Construction

Offering

Bachelor of Science in Construction
Masters of Science in Construction

Construction

(Bachelor of Science Degree Offered)

The Associated Schools of Construction define construction education as:

A discipline which is designed to instill in future constructors the skills, knowledge and understanding necessary to make the critical decisions which will guide the production and management processes of the largest industry in the United States.

In this Major the traditional areas of business, engineering, and architecture are combined with specialized courses in construction. Completion of this curriculum prepares the constructor to work with other specialists in managing the construction process.

Graduates in this field will help solve the complex technical and managerial problems in the building process, and can look forward to challenging careers which provide a full range of outlets for their creative efforts.

The subjects are taught so as to develop skills as well as instill knowledge. The intent is to create a professional who works well in team situations. The coursework frequently uses cases or projects to simulate the working environment. A constant effort is made to help the student develop an analytical, practical, and realistic approach to problem solving and decision-making.

Our accredited Construction program provides an opportunity for students to choose one or more of following three concentrations:

- General - focuses on project management and the construction process from the general contractor perspective
- Specialty - focuses on the mechanical and electrical managerial aspects of construction
- Development - focuses on the entrepreneurial and economic aspects of construction from the owner or developer perspective

Upon graduation most students pursue careers with construction firms. Typical entry-level positions include:

- Project engineer
- Safety engineer
- Assistant superintendent
- Assistant project manager
- Scheduling engineer
- Assistant cost engineer
- Quality control engineer
- Assistant estimator

Opportunities are not limited to these areas, however, as many graduates start their careers with equipment or material suppliers, development firms, specialty contractors, lenders, or owners.

The demand for constructors in Georgia, and particularly in the Atlanta area, is so great that employers have been forced to recruit out-of-state to hire graduates with construction management degrees. As a result, the program at Southern Polytechnic State University was established through the financial support of the members and associate members of the Georgia Branch of the Associated General Contractors of America, Inc. Southern Polytechnic State University is a member of Associated Schools of Construction (ASC). The fundamental objective of the ASC is to establish, advance, and sustain construction education as a unique and progressive academic discipline. The establishment and nurturing of the construction program is evidence of Southern Polytechnic State University's commitment to this objective.

Construction - Bachelor of Science						
Area A Essential Skills			9 hours			
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (extra hour is applied to area F)			4
Area B Institutional Options			4 hours			
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts			6 hours			
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology			11 hours			
	MATH	2240	Survey of Calculus I			3
	Area D		Any Two Lab Sciences (PHYS 1111K recommended)			8
Area E Social Sciences			12 hours			
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F			18 Hours			
	ACCT	2101	Accounting I	3	0	3
	MGNT	3145	Legal Environment and Change	3	0	3
	CET	2200	Introduction to Structures	4	0	4
	CNST	2000	Construction Graphics	2	2	3
	TCOM	2010	Technical Writing	3	0	3
	MGNT	3505	Managerial Statistics	3	0	3
	SURV	2200	Construction Measurements	3	3	4
Required Courses (The extra hour from area A is applied here)			47 – 49 hours			
	CNST	1000	Orientation to Construction and Development	1	2	2
	CNST	3000	Computer Applications in Construction	1	3	2
	CNST	3110	Building Techniques and Methods I	3	2	4
	CNST	3160	Building Techniques and Methods II	2	2	3
	CNST	3180	Building Techniques and Methods III	3	2	4
	CNST	3410	Construction Estimating I	2	2	3
	CNST	3500	Building Codes	2	0	2
	CNST	4510	Scheduling	2	2	3
	CNST	4710	Construction Safety	4	0	4
	CNST	4760	Construction Law	3	0	3
	CNST	4900	Capstone Project	1	6	3
	ECON	1101	Introduction to Economics – **See Note 1**	3	0	3
	MGNT	3105	Management and Organizational Behavior	3	0	3
	MGNT	3145	Legal Environment	3	0	3
	PHYS	1111K	Introductory Physics I – **See Note 2**	3	3	4
Concentration – Choose From Below			21			
Degree Program Total						128

Note 1 - If ECON 1101 was taken to satisfy Area E, Group 3, a 3-hour Construction Elective can be substituted.

Note 2 - If PHYS 1111K was taken to satisfy Area D, Lab Science, a 4-hour Construction Elective can be substituted.

General Concentration					
CNST	3210	Applied Structures I	4	0	4
CNST	3260	Applied Structures II	2	2	3
CNST	3420	Construction Estimating II	3	2	4
CNST	3620	Construction Finance and Feasibility	4	0	4
CNST	4560	Construction Project Management	3	0	3
CNST	4800	Construction Process Simulation	1	4	3

Development Concentration					
CNST	3310	Development Planning	3	0	3
CNST	3430	Construction Estimating III	2	2	3
CNST	3710	Site Planning	3	2	4
CNST	4570	Development Process I	4	0	4
CNST	4620	Development Process II	4	0	4
CNST	4770	Development Law	3	0	3

Specialty Concentration					
CNST	3280	MEP Codes and Loads	4	0	4
CNST	3480	Construction Estimating IV	3	2	4
CNST	4560	Construction Project Management	3	0	3
CNST	4580	Specialty Project Management	3	0	3
CNST	4680	Energy Conservation	4	0	4
CNST	4800	Construction Process Simulation -- *Note: Specialty Prerequisites for CNST 4800 are CNST 3410 and 3480*	1	4	3

Certificate Programs in Construction
Certificate programs are offered to provide training and education for students and working professionals in various areas of construction. Students can usually complete requirements in 3 to 4 terms. These courses may also be applied toward completing a B. S. degree in Construction.

Admission Requirements:
Applicants must meet all SPSU admissions requirements for undergraduate enrollment.

Certificate in Project Management Construction

The professional Certificate in Project management is designed for working professionals who wish to further their knowledge in construction project management. The certificate will also be useful for those individuals who wish to make a career change to the construction industry, or to those people who find themselves in the construction industry without first gaining a background in construction.

Prerequisites must be met prior to enrollment in certain certificate courses.

Required Courses: (11-12 semester hours)					
CNST	2000	Construction Graphics	2	2	3
CNST	3000	Computer Application in Construction	1	3	2
CNST	3110	Building Techniques and Methods I	3	2	4
		OR			
CNST	3160	Building Techniques and Methods II	2	2	3
CNST	4560	Construction Project Management	3	0	3

Elective Courses: (9 semester hours required)					
CNST	3410	Construction Estimating I	2	2	3
CNST	3420	Construction Estimating II	3	2	4
CNST	4510	Scheduling	2	2	3
CNST	4710	Construction Safety	4	0	4
CNST	4760	Construction Law	3	0	3

Certificate in Land Development The primary objective of the Certificate in Land Development is to provide training and education to members of the real estate and land development field in construction and land development principles and practices.

Prerequisites must be met before enrollment in certain certificate courses.

Required Courses: (14 semester hours)					
*CNST	3160	Building Techniques and Methods II	2	2	3
*CNST	3310	Land Development Planning	3	0	3
CNST	3710	Site Planning	3	2	4
CNST	4570	Land Development Process I	4	0	4

*May substitute courses from electives list if competency can be demonstrated

Elective Courses: (7 semester hours required)					
CNST	2000	Construction Graphics	2	2	3
CNST	3110	Building Techniques & Methods I	3	2	4
CNST	3410	Construction Estimating I	2	2	3
CNST	3430	Construction Estimating III	2	2	3
CNST	4510	Scheduling	2	2	3
CNST	4620	Land Development Process II	4	0	4
CNST	4770	Land Development Law	3	0	3

Certificate in Specialty Construction
The primary objective of the Certificate in Specialty Construction is to provide training and education for management of mechanical and electrical construction.

Prerequisites must be met prior to enrollment in certain certificate courses.

Required Courses: (19 semester hours)					
CNST	3180	Building Techniques and Methods III	3	2	4
CNST	3280	Mechanical, Electrical and Plumbing Codes & Loads	4	0	4
CNST	3480	Estimating IV	3	2	4
CNST	4580	Specialty Project Management	3	0	3
CNST	4680	Energy Conservation	4	0	4

Elective Courses: (2 semester hours required)					
CNST	3500	Building Codes	2	0	2
CNST	4510	Scheduling	2	2	3
CNST	4710	Construction Safety	4	0	4

School of Arts and Sciences

Offering

Associate of Science in General Studies

Bachelor of Science in Biology
Bachelor of Science in International Studies: Global Technology
Bachelor of Science in Mathematics
Bachelor of Science in Physics
Bachelor of Science in Technical and Professional Communication

Bachelor of Arts in International Studies: Global Technology
Bachelor of Arts in Mathematics
Bachelor of Arts in Physics
Bachelor of Arts in International Technical Communication

Master of Science in Information Design and Communication

SCHOOL OF ARTS & SCIENCES

Philosophy and Mission - The mission of the School of Arts and Sciences is to provide a broad range of knowledge, programs, and opportunities in support of the overall mission of the university. The School of Arts and Sciences emphasizes the applied nature of the disciplines within its scope inside the framework of a liberal education and strives to serve the needs of the whole student.

Serving the whole student means providing courses, programs, and activities leading to a balanced education. To this end, undergraduate and graduate courses throughout the School of Arts and Sciences foster

- Openness to new ideas
- Inquisitiveness
- Problem-solving
- Critical thinking skills
- And a desire for continued learning

The School provides opportunities to students, both undergraduate and graduate, for original research, advanced training and skills, and exposure to cooperative experiences with private industry. Additionally, the School strives to help students develop a critical perspective on themselves and their work by providing them with an understanding of their own culture, as well as an exposure to other cultures and societies and an appreciation of the world in which they live. In general, students are active participants rather than observers; they are regarded as citizens and future leaders as well as potential masters of their disciplines.

Objectives - Among its specific objectives, the School of Arts and Sciences strives to:

- Ensure that all SPSU students attain substantive knowledge and methodological skills in each of its various programs
- Cultivate throughout the curriculum well-developed skills in synthesis, analysis, problem solving, and evaluation
- Strengthen every student's communication skills so that they can speak and write effectively
- Encourage students to engage in independent learning, to pursue intellectual excellence, and to formulate questions and possible solutions about individuals, society, and nature within an international context
- Provide opportunities for students to develop a better understanding of the world's diverse cultural heritage
- Encourage a careful examination of the effects of technological change on human behavior, society, value systems and ethics
- Provide opportunities to students for original research and exposure to cooperative experiences with private industry

Current Offerings - The School of Arts and Sciences offers programs leading to either Bachelor of Arts or Bachelor of Science degrees in:

- Biology
- International Technical Communication
- Mathematics
- Physics
- International Studies: Global Technology
- Technical and Professional Communication

And a Master’s degree in Technical and Professional Communication.

Minors are available in:

- International Studies
- Mathematics
- Physics
- Spanish
- Technical Communication
- Asian Studies (in conjunction with Kennesaw State University)

In addition to these programs, the school also offers a transfer associate degree in General Studies.

Advising for Pre-Health Programs - The School of Arts and Sciences offers the courses needed by students seeking to apply to:

- Medical school
- Dental school
- Pharmacy school
- Veterinary school

All of the above health-oriented programs, except pharmacy, are pre-doctoral programs. Normally, a student earns a baccalaureate degree before matriculation into a doctoral program at the professional school. However, in the case of pharmacy, students apply for admission to a professional school after they have satisfied the prerequisite requirements for admission. Students should note that within any one field, different professional schools may vary slightly in their requirements, and thus, the student should consult a particular school's admission office.

Students interested in any of the above programs should note that there are no pre-professional majors per se; for example, a pre-dental student may choose to major in any of the programs offered by the university. The choice of majors is not limited provided the student satisfies all requirements of the professional school. In the process of completing the requirements for the aforementioned programs, the student may also want to satisfy the requirements needed to earn an Associate of Science in General Studies. Students interested in one or more of the aforementioned programs are encouraged to contact the Department Chair for Physics, Chemistry, and Biological Sciences.

Advising for Pre-Engineering Program - The Mathematics Program conducts a program of advisement for freshmen and sophomores who wish to begin college locally, but plan to transfer to a full engineering program later. Students who wish to participate in this program should enter as mathematics majors. They will be asked later to sign a statement that their intention is to transfer to an engineering program at another college rather than to complete a mathematics degree.

The advisors in the program will guide the students through an organized course of study which will provide a strong preparation in mathematics and science for the study of engineering and which will transfer with minimum loss of credit or time to most engineering programs. For those students who declare the college or university to which they wish to transfer, the advisor will endeavor to obtain a catalog for that college or university and design a specific program for transfer.

Associate of Science

A General Studies Transfer Program

The Associate of Science General Studies Transfer Program is designed for students who wish to complete the core at SPSU and then transfer to another institution.

Associate of Science General Studies (Transfer Degree)				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1111	Pre-calculus (Or Math 1113)	3
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	Take One of: (extra hour is applied to area F)			
	MATH	1113	Pre-Calculus I (extra hour is applied to area F)	4
	MATH	2253	Calculus	4
	MATH	2240	Survey of Calculus	4
	And			
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F (The extra hour from areas A and D are counted here) 18 Hours				
			Any lower level course approved in Areas C-F	0-9
			Humanities	3-9
			Mathematics or Science	0-8
			Social Sciences	3-9
	Program Total			60

Biology, Chemistry, and Physics

Offering

Bachelor of Science in Biology
Bachelor of Science in Physics
Bachelor of Arts in Physics

Biology

Bachelor of Science Offered
Visit biology.spsu.edu for more information.

The Bachelor of Science (BS) degree provides students a program of study in modern biology with optional tracks in biochemistry and molecular biology, pre-professional studies, general biology, and bioinformatics.

Biology students in all tracks are strongly encouraged to avail themselves of SPSU's cooperative education or internship linkages with industry as an integral part of their educational experience.

Biology				
Area A	Essential Skills		9	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus	3
Area B	Institutional Options		4	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C	Humanities/ Fine Arts		6	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D	Science, Mathematics, and Technology		11	
	MATH	2253	Calculus I	4
	Area D		Any Two Lab Sciences	8
Area E	Social Sciences		12	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F	(18 hours) Any Four of the following not taken in area D totaling 18 hours			
	CHEM	1211K	Principles of Chemistry I	4
	CHEM	1212K	Principles of Chemistry II	4
	PHYS	1111K	Introductory Physics I	4
	PHYS	1112K	Introductory Physics II	4
	BIOL	2107K	Biological Principles I	4
	BIOL	2108K	Biological Principles II	4
NOTE: Excess hours from area A and D are applied here. Courses in this group not taken as part of the core must be taken as electives. PHYS 2211K and 2212K may be taken instead of PHYS 1111K and 1112K				
Track Requirement Take one of the tracks described below.			60	
Degree Program Total				120

Bioinformatics Track Requirements				60
	BIOL	3000K	Genetics	4
	BIOL	3310K	Molecular Biology	4
	BIOL	4500K	Bioinformatics I	4
	BIOL	4510K	Bioinformatics II	4
	BIOC	3111K	Biochemistry I	4
	CHEM	2511K	Organic Chemistry I	4
	CHEM	2512K	Organic Chemistry II	4
	MATH	2260	Probability and Statistics	3
	TCOM	2010	Technical Writing	3
	CS	1301	Computer Science I	4
	CS	1302	Computer Science II	4
	CS	3153	Database Systems	3
			Free Electives	6

BIOL ELEC At least 3 additional upper-level courses in BIOL above 2108K 9 – 12

Biochemistry & Molecular Biology Track Requirements				60
	BIOL	3000K	Genetics	4
	BIOL	3200K	Biotechnology	4
	BIOL	3310K	Molecular Biology	4
	BIOC	3111K	Biochemistry I	4
	BIOC	3112K	Biochemistry II	4
	CHEM	2511K	Organic Chemistry I	4
	CHEM	2512K	Organic Chemistry II	4
	MATH	2260	Probability & Statistics I	3
	TCOM	2010	Technical Writing	3
			Free Electives	10 - 14
	BIOL	ELEC	At least 4 additional Biology Courses Above 2108K (Excluding Track Requirements)	12-16

Pre-Professional Track Requirements				60
	BIOL	3000K	Genetics	4
	BIOL	3400K	Cell Physiology	4
	BIOL	4400K	Anatomy & Physiology I	4
	BIOL	4460K	Anatomy & Physiology II	4
	BIOC	3111K	Biochemistry I	4
	CHEM	2511K	Organic Chemistry I	4
	CHEM	2512K	Organic Chemistry II	4
	MATH	2260	Probability & Statistics I	3
	TCOM	2010	Technical Writing	3
	BIOL	ELEC	At Least 4 Biology Courses Above 2108K (Excluding Track requirements)	13-16
			Free Electives	10-13

General Biology Track Requirements				60
	BIOL	3000K	Genetics	4
	BIOL	3300	Ecology	3
	BIOC	3111K	Biochemistry I	4
	CHEM	2511K	Organic Chemistry I	4
	CHEM	2512K	Organic Chemistry II	4
	MATH	2260	Probability & Statistics I	3
	TCOM	2010	Technical Writing	3
			Free Electives	15-18
	BIOL	ELEC	At Least 5 Biology Courses Above 2108K (Excluding Track requirements), with at least one course from each of the following two groups	17-20

Cellular Form and Function				
	BIOL	3100K	Microbiology	4
	BIOL	3400K	Cell Physiology	4
	BIOL	4410K	Immunology	4
	BIOL	4470	Plant Physiology	3

Organismal Form and Function				
	BIOL	4100K	Entomology	4
	BIOL	4200K	Zoology	4
	BIOL	4400K	Anatomy & Physiology I	4
	BIO L	4440K	Botany	4

A grade of “C” or better must be earned in all courses used to satisfy track requirements (excluding Free Electives).

Physics

(Bachelor of Arts and Bachelor of Science Degrees Offered)
Visit physics.spsu.edu for more information.

The Physics degree program is designed to prepare students for industrial employment or for graduate study in Physics or in a variety of other disciplines. Students should choose their electives in consultation with their advisor so as to meet their individual career objectives.

Physics Bachelor of Arts				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F (The extra hour from areas A and D are counted here)			18 Hours	
	PHYS	2211K	Principles of Physics I	4
	PHYS	2212K	Principles of Physics II	4
	MATH	2254	Calculus II	4
	MATH	2255	Calculus III	4
Required Courses			33 hours	
	TCOM	2010	Technical Writing	3
	MATH	2306	Ordinary Differential Equations	3
	PHYS	3210	Intermediate Mechanics	4
	PHYS	3220	Electromagnetism I	3
	PHYS	3410K	Electronics Laboratory	2
	PHYS	3500K	Introduction to Computational Physics	2
	PHYS	3710	Modern Physics	4
	PHYS	3720L	Modern Physics Laboratory	1
	PHYS	4210	Quantum Physics	4
	PHYS	4230	Thermal Physics	4
	PHYS	4410K	Advanced Measurements Laboratory	2
	PHYS	4430	Capstone Physics Project	1
Free Electives			6 hours	
Foreign Language and International Studies Minor			18 hours	
Upper Division Physics Electives			4 hours	
Degree Program Total				120

Physics Bachelor of Science				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F (The extra hour from areas A and D are counted here)			18 Hours	
	PHYS	2211K	Principles of Physics I	4
	PHYS	2212K	Principles of Physics II	4
	MATH	2254	Calculus II	4
	MATH	2255	Calculus III	4
Required Courses			33 hours	
	TCOM	2010	Technical Writing	3
	MATH	2306	Ordinary Differential Equations	3
	PHYS	3210	Intermediate Mechanics	4
	PHYS	3220	Electromagnetism I	3
	PHYS	3410K	Electronics Laboratory	2
	PHYS	3500K	Introduction to Computational Physics	2
	PHYS	3710	Modern Physics	4
	PHYS	3720L	Modern Physics Laboratory	1
	PHYS	4210	Quantum Physics	4
	PHYS	4230	Thermal Physics	4
	PHYS	4410K	Advanced Measurements Laboratory	2
	PHYS	4430	Capstone Physics Project	1
Free Electives			6 hours	
Directed Electives approved by the program			11– 17 hours	
Upper Division Physics Electives			4 - 10 hours	
Degree Program Total				120

A Second Degree In Physics

Students who are earning B.S. degrees in other fields at Southern Polytechnic State University may also earn a second major in Physics.

SPSU students who wish to earn a second major in physics will be required to take the following 22 hours of course work:

Course	Hours
PHYS 3210	4
PHYS 3220	3
PHYS 3410K	2
PHYS 3500K	2
PHYS 3710	4
PHYS 3720L	1
PHYS 4230	4
PHYS 4410K	2

Social and International Studies

Offering

Bachelor of Science in International Studies: Global Technology

International Studies: Global Technology

(Bachelor of Science Degree Offered)

By offering an International Studies degree with a concentration in Global Technology, SPSU is seeking to produce graduates who not only understand the political and economic processes of globalization, but also possess technological skills and knowledge that will allow them to deal with the new demands of the global economy.

Companies that will employ our graduates will be global ones, so it is necessary for their employees to understand the political, economic, cultural, as well as technical contexts in which their companies function. The International Studies degree will prepare graduates for employment in:

- International business
- Intelligence
- Graduate study
- The travel industry
- The military
- Pre-law
- The transportation industry
- Government
- Public policy

Students pursuing this degree must complete:

• The Core Curriculum	60
• Required upper division courses in international studies	18
• An area of technical specialization	15-22
• Linkage courses (linking technology and international studies)	12
• International electives	8-15

Any courses taken to satisfy degree program requirements in the following sections must be passed with a grade of "C" or better : Area F, International Studies Upper Division Core, Technical Concentration, Linkage Module, and International Electives.

Included below are the complete requirements for the program.

International Studies: Global Technology				
Area A	Essential Skills		9	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1111	College Algebra	3
Area B	Institutional Options		4	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C	Humanities/ Fine Arts		6	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D	Science, Mathematics, and Technology		11	
	MATH	1113	Pre-Calculus I	3
	Area D		Any Two Lab Sciences	8
Area E	Social Sciences		12	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F	(18 hours)			
	ECON	2106	Micro Economics	3
	SPAN	2001	(Or six hours in another language at a similar level)	3
	SPAN	2002		3
	SIS	2100	Introduction to Quantitative Research Methods	3
Take one of the following:			3	
	SIS	2101	Comparative Politics	3
	POLS	2401	Global Issues	3
Take one of the following: (The one not taken for Area E-3 of the Core)			3	
	ECON	1101	Introduction to Economics	3
	PSYC	1101	Introduction to General Psychology	3
Required International Studies Upper Division Core (Take all of these)			18	
	POLS	3101	International Political Economy	3
	PSYC	3101	International Social Psychology	3
	SIS	3100	Contemporary World Politics	3
	SIS	3600	Comparative Culture	3
	SIS	3800	Contemporary World History Since 1945	3
	SIS	400X	Regional Studies	3
Linkage Module (12)	(Choose **four of the following** three-hour courses)			
	SIS	4100	Cross-National Technology Policy Analysis	3
	SIS	4600	Global Technology Internship	3
	STS	4000	International Issues in Science and Technology	3
	STS	4400	Topical Studies in Science and Technology	3
	STS	4800	Global Technology Seminar	3
International Electives (8-15) Take 8-15 elective hours from the following coursework:				
	ATET	1300	International Sourcing and Employee Systems	4
	ENGL	2110	World Literature	3
	GEOG	3101	World Regional Geography	3
	MGNT	4125	Technology and Public Issues	3
	POLS	4101	Political Economy of Post-Communist Transformation	3
	SIS	3901-03	Special Topics in International Studies	1-3
	SIS	400X	Regional Studies	3
	TCOM	3060	International Communication	3
Technical Specialization (15-22) As Outlined Below				
Degree Program Total				120

Students must choose one of the following areas of technical concentrations:

Apparel and Textile Engineering Technology	21-22
Biology	15-16
Civil Engineering Technology	16-17
Computing Science	17
Construction	16
Electrical Engineering Technology	15
General Technology Concentration	17-21
Industrial Engineering Technology	16
Management	18
Technical and Professional Communication	15
Technology and the Law	21

General Technology Concentration

This option gives students a broad understanding of technology and enables them to work across a broad range of technologies. Students taking this option are encouraged to take PHYS 1111 and PHYS 1112 as part of the Core. Students taking this technical specialty must also take courses as outlined in the chart below:

GENERAL TECHNOLOGY CONCENTRATION		17-21 hours	
Orientation Course: Take any one of the following:		(1-2 Hours)	
ATET	1000	Apparel and Textile Orientation	(1-0-1)
CET	1001	Orientation to Civil Engineering Technology	(1-0-1)
CNST	1000	Orientation to Construction and Development	(1-2-2)
ECET	1000	Orientation to Electrical Engineering Technology	(2-0-2)
IET	1000	Orientation to Industrial Engineering Technology	(1-0-1)
MET	1000	Mechanical Engineering Technology Orientation	(1-0-1)
Computer Literacy		(3-4 Hours)	
CS	1301	Computer Science I	(3-2-4)
		OR	
CS	2123	Programming	(2-2-3)
Graphics. Take one of the following:		(2-4 Hours)	
EG	1210	Survey of Engineering Graphics	(1-3-2)
EG	1211	Survey of Engineering Graphics I	(3-3-4)
CNST	2000	Construction Graphics	(1-3-2)
Electricity		(4 Hours)	
ECET	3000	Electrical Principles (Phys 1112 pre-req)	(3-3-4)
Measurement. Take one of the Following:		(4 Hours)	
CET	2200	Introduction to Structures (Phys 1111 pre-req)	(4-0-4)
SURV	2200	Construction Measurement (Math 1113 pre-req)	(3-3-4)
SURV	2221	Surveying	(3-3-4)
Manufacturing		(3 Hours)	
MET	1311	Manufacturing Process	(3-0-3)
		OR	
IET	2305	Production Process	(3-3-4)

Apparel and Textile Engineering Technology
This concentration will give students a basic understanding of the principles and terminology involved in either apparel or textile engineering technology. Students taking this technical specialty must take:

Apparel and Textile Engineering Technology		21-22 hours	
Required Course			
CHEM	1211K	Principles of Chemistry	4
And One of the Two Groups Below:			
Textile			
ATET	1100	Fiber & Yarn Formation	5
ATET	1300	International Sourcing	4
ATET	2500	Fabric Formation	5
ATET	4440	Testing and Quality Control	4
			18
Apparel			
ATET	1300	International Sourcing	4
ATET	2301	Apparel and Textile Computer Systems	5
ATET	2600	Equipment/Systems Evaluation and Selection	3
ATET	3602	Apparel and Textile Computer Systems II	5
			17

Biology
This area of concentration will provide students with a basic understanding of the principles and terminology in the Biology discipline. Students taking this technical specialty must take:

Biology		15-16 Hours	
BIOL	3000K	Genetics	4
BIOL	3310K	Molecular Biology	4
BIOL	3200K	Biotechnology	4
BIOL	Elective	Any Biology course above the 3000 level	3-4

Civil Engineering Technology
This concentration will give students a basic understanding of the principles and terminology involved in civil engineering technology.

Civil Engineering Technology		16-17 hours	
Civil			
CET	1001	Orientation	1
CET	2160	Civil Graphics	4
CET	2200	Intro to Structures	4
CET	3343	Basic Fluid Mechanics	4
CET	3344	Fundamentals of Environmental Engineering Technology	3
			16
OR			
Surveying			
CET	1001	Orientation	1
CET	2160	Civil Graphics	4
SURV	2221	Surveying I	4
SURV	3222	Surveying II	4
SURV	3421	Geographic Info Systems	4
			17

Computing
This concentration will give students a basic understanding of the principles and terminology involved in computer science and programming. Students taking this technical specialty must take:

Computing		20 hours	
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
IT	3124	Hardware/Software Concepts	4
CS	3153	Database Systems	3
SWE	2313	Introduction to Software Engineering	3
SWE	2642	Professional Practices and Ethics	2

Construction
This concentration will give students a basic understanding of what makes the construction process work. Students taking this technical specialty must take:

Construction		16 hours	
CNST	1000	Orientation	2
CNST	2000	Construction Graphics	4
CNST	3000	Computer Applications	2
CNST	3110	Building Techniques II	4
CNST	3410	Estimating I	4

Electrical Engineering Technology
This concentration will give students a basic understanding of the principles and terminology involved in electrical engineering technology.

Electrical		15 hours	
ECET	1000	Orientation	2
ECET	1010	Fundamentals	2
ECET	2800	Intro to Telecommunications	4
ECET	3000	Electrical Principles	4
ECET	3810	C++, JAVA, HTML	3

* Note: For IS:GT majors with an Electrical Engineering Technology concentration, the pre-requisites for ECET 2800 (Introduction to Telecommunications) have been waived, as long as the student has successfully completed ECET 3000 (Electrical Principles).

Industrial Engineering Technology
This concentration will give students a basic understanding of the principles and terminology involved in industrial engineering technology.

Industrial		16 Hours	
IET	1000	Orientation	1
IET	2227	Industrial Statistics	4
IET	2305	Production Process	4
IET	2432	Cost Estimating	3
IET	3322	Work Measures	4

Management
This concentration will give students a basic understanding of the principles, practices, and terminology involved in Management.

Management			18 Hours
MGNT	3105	Management and Organizational Behavior	3
MGNT	3135	Marketing Principles	3
MGNT	4125	Technology and Public Issues	3
MGNT	4145	International Management	3
MGNT	4185	Technology Management	3
MGNT	4195	Current Readings in Management of Technology and Operations	3

* Note: For IS:GT majors with a concentration in Management, the MGNT 3125 (Basic Business Finance) pre-requisite (for MGNT 4145 – International Management) will be waived.

Technical and Professional Communication
This concentration will give students a basic understanding of the principles and terminology involved in technical writing. Students taking this technical specialty must take:

Technical and Professional Communication		15 Hours	
TCOM	2000	Business Communication	3
TCOM	2010	Technical Writing	3
TCOM	300x	Any 3000 level or above TCOM courses	9

TECHNOLOGY AND THE LAW

One of the most common career paths chosen by students of International Studies is a legal career. Additionally, legal training in technology issues is both in demand at present and is extensively needed domestically, as well as internationally. Thus, this concentration will provide International Studies: Global Technology majors with additional coursework that will better prepare them for pursuing a career in law upon graduation with a B.S. in I.S.:G.T.

I. Students must take all of the following:			21 hours	
	POLS	1101	American Government*	3
	HIST	2111	U.S. History I*	3
	HIST	2112	U.S. History II*	3
II Students must take both of the following:				
	TCOM	2000	Business Communication	3
	ECON	2106	Microeconomics	3
III. Students must take three of the following, (for a total of 9 hours):				
	POLS	3201	Constitutional and International Law	3
	POLS	3301	Modern Political Theory	3
	POLS	3401	Regulatory and Environmental Law	3
	POLS	3501	Intellectual Property Issues	3
	MGNT	3145	Legal Environment	3
	CNST	4760	Construction Law	3

*Note: One of these three courses satisfies the student's Area E, Group 1 Core requirement. The other two courses (six hours) are required in this concentration.

*Note: For IS:GT majors with a Technology and the Law concentration, the pre-requisites for CNST 4760 (Construction Law) have been waived.

Undergraduate Certificate in Professional Spanish

The Undergraduate Certificate in Professional Spanish provides individuals who speak, read, and write Spanish with additional skills in translation as well as written, oral, and cross-cultural communication specific to a variety of professional work environments.

Certificate course requirements

1. Courses in Spanish leading toward the minor. Take at least **nine** hours (in addition to SPAN2001-2002) from among the following courses:

SPAN 3001—Advanced Conversation	3-0-3
SPAN 3002—Grammar and Composition	3-0-3
SPAN 3003—Hispanic Cultures and Civilizations	3-0-3
SPAN 3901-3905—Special Topics	1 - 5 hours

2. Upper division Spanish courses. Take at least **six** hours from among the following courses:

SPAN4001— Professional Spanish	3-0-3
SPAN4002—Techniques in Translation for Professional Spanish	3-0-3
SPAN4901-4905—Special Topics for Professional Spanish	1 – 5 hours

Other Certificate Requirements

SPAN4003----Service Learning Project. 3-0-3
A project arranged between student and industry or community representative, with approval of faculty of Spanish. After 40 hours of service, a final report is required.

The ACTFL (American Council on the Teaching of Foreign Language) OPI (Oral Proficiency Interview) must be taken after course work toward the certificate is completed. The student registers for a one-credit Orientation course through the Extended University to satisfy this requirement. This rating will be posted on the student's certificate. It is recognized nationally.

Recommended Electives

Although not required to satisfy certificate requirements, it is especially recommended that participants take the following courses as electives:

MGNT 4145—International Management
SIS 4001—Regional Studies—Latin America

Mathematics

Offering

Bachelor of Arts in Mathematics
Bachelor of Science in Mathematics

Mathematics

(Bachelor of Arts and Bachelor of Science Degrees Offered)

Programs in Mathematics - The programs in Mathematics are designed to prepare the student for further study in mathematics, education, or other subjects or for employment in a variety of fields.

The B.S. degree candidate will, through the nature of the mathematics electives and the opportunities offered by other programs, have a scientifically and technically oriented program which allows entry into many fields of science, engineering, and technology as well as education and business. The B.A. candidate will have a strong background in Mathematics coupled with a minor in International Studies, Technical and Professional Communication, or Spanish.

The mathematics portion of the major under the B.S. degree consists of three components: Required Courses, Mathematics Electives, and Guided Electives. Although the Required Courses provide the bulk of the mathematics in the degree, they also provide a framework for other series of Mathematics courses to be included under Mathematics Electives and Guided Electives. Students planning to attend graduate school in Mathematics are urged to select these courses carefully in consultation with an advisor. Students planning to seek employment in business or industry should consider a minor in a related field, such as computer science. A computer science minor can be completed within the Guided Electives of the Mathematics degree.

Through the second major in Mathematics and the minor in Mathematics, students in other fields may acquire a substantial background and competence in Mathematics.

Advising for Pre-Engineering Program - The Mathematics Program conducts a program of advisement for freshmen and sophomores who wish to begin college locally, but plan to transfer to a full engineering program later. Students who wish to participate in this program should enter as mathematics majors. The advisors in the program will guide the students through an organized course of study which will provide a strong preparation in mathematics and science for the study of engineering and which will transfer with minimum loss of credit or time to most engineering programs.

Mathematics Bachelor of Arts				
Detailed information regarding the Core Curriculum requirements may be found in the core curriculum area of this catalog.				
Area A	Essential Skills		9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B	Institutional Options		4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C	Humanities/ Fine Arts		6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D	Science, Mathematics, and Technology		11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D		Any Two Lab Sciences	8
Area E	Social Sciences		12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F	(The extra hour from areas A and D are counted here)		18 Hours	
	CS	1301	Computer Science I	4
	CS	1302	Computer Science II	4
	MATH	2254	Calculus II	4
	MATH	2255	Calculus III	4
Required Courses			31 hours	
	MATH	2306	Ordinary Differential Equations	3
	MATH	2345	Discrete Mathematics	3
	MATH	3256	Linear Algebra and Calculus	3
	MATH	3310	Introduction to Advanced Mathematics	3
	MATH	3312	Linear Algebra	4
	MATH	3320	The Real Line	4
	MATH	3321	Functions of a Real Variable	4
	MATH	4440	Abstract Algebra	4
	MATH	4451	Applications of Mathematics	3
Mathematics Electives			6 hours	
Any mathematics course numbered 2300 or above, excluding those for which dual credit is not allowed.				

International Studies, Technical and Professional Communication, or Spanish Minor 15 hours	
Guided Electives 8 hours	
May include additional mathematics courses or other courses chosen in consultation with an advisor. May not include mathematics courses numbered less than 2000, or courses for which dual credit is not allowed.	
Degree Program Total	120

Mathematics Bachelor of Science				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F (The extra hour from areas A and D are counted here)			18 Hours	
	CS	1301	Computer Science I	4
	CS	1302	Computer Science II	4
	MATH	2254	Calculus II	4
	MATH	2255	Calculus III	4
Required Courses			31 hours	
	MATH	2306	Ordinary Differential Equations	3
	MATH	2345	Discrete Mathematics	3
	MATH	3256	Linear Algebra and Calculus	3
	MATH	3310	Introduction to Advanced Mathematics	3
	MATH	3312	Linear Algebra	4
	MATH	3320	The Real Line	4
	MATH	3321	Functions of a Real Variable	4
	MATH	4440	Abstract Algebra	4
	MATH	4451	Applications of Mathematics	3
Mathematics Electives			9 hours	
Any mathematics course numbered 2300 or above, excluding those for which dual credit is not allowed.				
Science Requirement				
Physics 2211K and Physics 2212K must be completed. Students are urged to satisfy this requirement in Area D of the core. If this is not done, then Guided Electives must be used.				
Guided Electives			20 hours	
May include additional mathematics courses or other courses chosen in consultation with an advisor. May not include mathematics courses numbered less than 2000, or courses for which dual credit is not allowed.				
Degree Program Total				120

Second Major in Mathematics

A student completing the B.A. or B.S. degree in a field other than Mathematics may receive a second major in Mathematics at the same time to accompany that degree by completing the following courses. Note that additional courses, which are the prerequisites to these courses, are required by implication.

Required Courses			
MATH	2255	Calculus III	4
MATH	2306	Ordinary Differential Equations	3
MATH	2345	Discrete Mathematics	3
MATH	3256	Linear Algebra and Calculus	3
MATH	3312	Linear Algebra	4
MATH	3320	The Real Line	4
MATH	3321	Functions of a Real Variable	4
MATH	4440	Abstract Algebra	4
MATH	4451	Applications of Mathematics	3

Second Degree in Mathematics

Students who receive a degree from SPSU in a field other than Mathematics may receive a B.S. with a major in Mathematics by completing all the requirements for the Mathematics degree. The same courses may be used to fulfill requirements for both degrees, but there must be at least 30 semester hours used to fulfill the requirements for the Mathematics degree which are not used to fulfill the requirements for any other degree.

Technical and Professional Communication

Offering

Bachelor of Science in Technical and Professional Communication
Bachelor of Arts in International Technical Communication
Master of Science in Information Design and Communication

Technical and Professional Communication

(Bachelor of Arts and Bachelor of Science Degrees Offered)

The Bachelor's programs in Technical and Professional Communication (BSTPC) and International Technical Communication (BAITC) are designed to prepare students for a variety of communication careers. Possible positions include:

- Technical communicator
- Documentation specialist
- Technical editor
- Information Design
- Multimedia specialist
- Proposal writer
- Graphics specialist
- Instructional designer or training specialist
- Website designer and content developer

The program also can serve as a pre-professional background for students who plan to attend graduate school.

Students pursuing the degree must complete:

- The Core Curriculum
- Required upper-division courses in technical communication (TCOM)
- Either :
  - A group of major courses (BS)
  - Or the International Studies or the Asian Studies Minor (BA)
- Arts and Sciences courses (especially those in science, technology, and society)
- Free electives

Students must make a grade of at least a C in all TCOM major courses. BSTPC or BAITC candidates who make D's or F's in any of the Required Courses or Electives cannot count those D or F courses toward graduation.

Included below are the complete requirements for the programs.

Bachelor of Arts in International Technical Communication				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1111	College Algebra	3
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group SEE NOTE 1	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	1113	Pre-calculus I (See NOTE 2)	4
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3

Area F (See NOTE 1; The extra hour from Area D is counted here) 18 Hours				
	TCOM	2000	Business Communication	3
	TCOM	2010	Technical Writing	3
	TCOM	2020	Foundations of TCOM	3
	TCOM	2030	Research in TCOM	3
	TCOM	2060	International TCOM	3
	Math or Science	Elective	Math or Science Elective SEE NOTE 2	3
Basic Required Courses **15 hours**				
	ENGL	3030	English Grammar for Professional writers	3
	TCOM	4030	Foundations of Graphics	3
	TCOM	4100	Small Group Communication	3
	TCOM	4160	Rhetoric: History, Theory, and Practice	3
	TCOM	4800	Project Portfolio	3
TCOM Electives – Select any from this group **24 hours**				
	ARTS	2010	Introduction to Drawing	3
	ARTS	3000	Visual Thinking	3
	STS	4000	International Issues in Science and Technology (NOTE 4)	3
	STS	4400	Topical Studies in Science and Technology (NOTE 4)	3
	TCOM	2040	Tools for Technical Communicators	3
	TCOM	3010	Science Writing	3
	TCOM	3015	Environmental Writing	3
	TCOM	3020	Proposal Writing	3
	TCOM	3030	Instructional Design	3
	TCOM	3040	Writer's Workshop	3
	TCOM	3045	Fundamentals of Information Design	3
	TCOM	3050	Journalism	3
	TCOM	3901-3	Special Topics	1-3
	TCOM	4035	Fundamentals of Website Design	3
	TCOM	4040	Advanced Tools for Technical Communicators	3
	TCOM	4045	Foundations of Multimedia	3
	TCOM	4050	Advanced Graphics Tools for Technical Communicators	3
	TCOM	4070	User Documentation	3
	TCOM	4130	Online Documentation	3
	TCOM	4170	Video Production	3
	TCOM	4600	Independent Study	3
	TCOM	4700	Internship	3
Free Electives			Any other courses	6
B.A. in International Technical Communication **120 hours**				
Core Curriculum (Areas A through F) **60 hours**				
Major Courses Required **15 hours**				
TCOM Electives **24 hours**				
International Studies / Asian Studies Minor (Notes 1 3) **15 hours**				
Free Electives **6 hours**				

Note 1: Although students are not required to take a foreign language to complete the core, a language is required to complete the IS Minor. Students may use the language to satisfy both Area C and IS Minor requirements.

Note 2: Any extra hours earned as a result of the math and science electives can be used to satisfy free electives.

Note 3: The International Studies Minor also requires completion of a language requirement by (1) testing or demonstrating proficiency in one foreign language or (2) completing FREN 1002, GRMN 1002, or SPAN 1002.

Note 4: Students may take STS 4000 or STS 4400 but not both for TCOM Electives**.**

Bachelor of Science in Technical and Professional Communication				
Area A Essential Skills			**9 hours**	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1111	College Algebra	3
Area B Institutional Options			**4 hours**	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			**6 hours**	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			**11 hours**	
	MATH	1113	Pre-Calculus I (SEE NOTE 1)	4
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			**12 hours**	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F Major Courses			**18 Hours**	
	TCOM	2000	Business Communication	3
	TCOM	2010	Technical Writing	3
	TCOM	2020	Foundations of TCOM	3
	TCOM	2030	Research in TCOM	3
	TCOM	2040	Tools for Technical Communicators	3
	Math or Science	Elective	Math or Science Elective SEE NOTE 1	3
Basic Required Courses			**15 hours**	
	ENGL	3030	English Grammar for Professional Writing	3
	TCOM	4030	Foundations of Graphics	3
	TCOM	4100	Small Group Communication	3
	TCOM	4160	Rhetoric: History, Theory, and Practice	3
	TCOM	4800	Project Portfolio	3
TCOM Electives (the extra hour from Area D is counted here) See NOTE 1			**15 hours**	
	TCOM	3901-3	Special Topics	1-3
	TCOM	4040	Advanced Tools for Professional Communicators	3
	TCOM	4600	Independent Study	3
	TCOM	4700	Internship	3
	STS	4000	International Issues in Science and Technology (NOTE 2)	3
	STS	4400	Topical Studies in Science and Technology (NOTE 2)	3
	Free Electives		Any other courses	15 hours
	The Major Concentrations			
	Professional Writing and Communication 3 hrs. required/15 hrs. required for concentration			
	TCOM	3010	Science Writing	3
	TCOM	3015	Environmental Writing	3
	TCOM	3020	Proposal Writing	3
	TCOM	3050	Journalism	3
	TCOM	3040	Writers' Workshop	3
	TCOM	4000	Professional Editing (**required for concentration**)	3
Digital Media and Graphics 6 hrs. required/15 hrs. required for concentration				
	ARTS	3000	Visual Thinking (**required for concentration**)	3
	TCOM	4035	Fundamentals of Website Design	3
	TCOM	4170	Video Production	3
	TCOM	4045	Foundations of Multimedia (**required for concentration**)	3
	TCOM	4050	Advanced Graphics Tools for Technical Communicators	3
Information Design 6 hrs. required/15 hrs. required for concentration				

	TCOM	3030	Instructional Design	3
	TCOM	3045	Fundamentals of Information Design (**required for concentration)**	3
	TCOM	4000	Professional Editing (**required for concentration)**	3
	TCOM	4130	Online Documentation	3
	TCOM	4070	User Documentation	3
	TCOM	4120	Usability Testing	3
	TCOM	3030	Instructional Design	3
	TCOM	3045	Fundamentals of Information Design (**required for concentration)**	3
B.S. in Technical and Professional Communication			**120 hours**	
Core Curriculum (Areas A through F)			**60 hours**	
Major Courses Required			**15 hours**	
Major Concentration			**15 hours**	
TCOM Electives			**15 hours**	
Free Electives			**15 hours**	

NOTE 1: Any extra hour earned as a result of the math and science elective can be used for Free Electives.

Note. 2: Students may take STS 4000 or STS 4400 but not both for TCOM Electives.

School of Computing and Software Engineering

Offering

Bachelor of Science in Computer Science
Bachelor of Arts in Computer Science
Bachelor of Science in Information Technology
Bachelor of Science in Software Engineering
Master of Science in Computer Science
Master of Science in Information Technology
Master of Science in Software Engineering

SCHOOL OF COMPUTING AND SOFTWARE ENGINEERING (CSE)

The purpose of the School of Computing and Software Engineering (CSE) is to:

- Provide high quality baccalaureate and masters degree programs in:

  -Computer Science (CS)
  -Information Technology (IT)
  -Software Engineering (SWE)

- To provide credit-based certificates in a variety of areas and levels of computing
- To collaborate with industry and government
- To participate in applied research

Our laboratory facilities are excellent, including labs for general projects, real-time systems, networks, embedded systems, and high performance computing, among others.

The School of Computing and Software Engineering offers the following degrees:

- Bachelor of Science, major in Computer Science
- Bachelor of Arts, major in Computer Science
- Bachelor of Science in Information Technology
- Bachelor of Science in Software Engineering
- Master of Science, major in Computer Science
- Master of Science in Information Technology
- Master of Science in Software Engineering

All of our degree programs are consistent with national models and standards developed by ACM, IEEEComputer Society, and ABET.

The credit-based certificates offered are:

- Professional Certificate in Programming
- Graduate Transition Certificate in Computer Science
- Graduate Transition Certificate in Information Technology
- Graduate Certificate in Information Technology
- Graduate Certificate in Software Engineering

CSE has a history of collaboration with industry and government, particularly associated with economic development initiatives.

Computer Science

Offering

Bachelor of Science in Computer Science
Bachelor of Arts in Computer Science
Master of Science in Computer Science

Computer Science

(Bachelor of Science and Bachelor of Arts Degrees Offered)

The baccalaureate programs in Computer Science emphasize the entire scope of computer science, ranging from basic hardware principles through the system and application software levels to the use and management of such systems.

The Bachelor of Science degree is designed for students wanting a maximum technical preparation for their career.

The Bachelor of Arts degree is designed for students wanting an international flavor for their study, since many opportunities are available with multinational corporations.

Both degrees have Core requirements, Major requirements, and Directed Electives. The Core provides basic coursework to ensure that the graduate is well-rounded as an educated individual.

The Major contains those CS and SWE courses considered fundamental to the field, regardless of any specialization. The Directed Electives provide depth beyond the Core to support the student's professional preparation.

Both degrees require a grade of "C" or better in all CS, SWE, and IT courses applied to degree requirements.

Students in the BS degree program are required to have at least three science-related courses subject to the following rules:

- Two lab science courses used to satisfy Area D of the core
- The remainder may be taken as lab sciences or as other approved courses that provide breadth and/or depth in the natural sciences or otherwise explore the scientific method
- Two of the lab science courses must be a sequence in the same discipline

Program Objectives

I. **Students**: Meet the educational needs and prepare them for careers within the discipline. Computer Science students should be well-versed in not only the fundamentals but also develop skills in problem solving, logic, organization, and ethics.

1. To provide graduates with a thorough grounding in key principles and practices of computing, and in the mathematical principles that underpin them
2. To provide graduates with an understanding of the ethical aspects of computing within society
3. To provide graduates with applicable communication and team skills to be used in computing careers
4. To prepare graduates for employment in the computing profession

II. **Curriculum**: Maintain a challenging curriculum that is consistent with national standards and regional industrial needs.

1. Maintain a curriculum that is consistent with national recommended standards (ACM & IEEE Computer Society)
2. Maintain an up-to-date curriculum by taking into account significant changes within the discipline and regional industrial needs

Computer Science Bachelor of Science				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D	See your advisor before you select science courses		8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F (Unused hours from Area A and D and 1 Free elective applied here) 18 Hours				
	CS	1301	Computer Science I	4
	CS	1302	Computer Science II	4
	MATH	2254	Calculus II	4
	MATH	2345	Discrete Math	3
Major Required Courses			39-40 Hours	
	CS	1002	Introduction to the Computing Disciplines	2
	CS	2223	Digital Design	3
	SWE	2642	Professional Practices and Ethics	2
	CS	3123	Programming Language Concepts	3
	CS	3223	Computer Architecture	3
	CS	3243	Operating Systems	3
	CS	3424	Data Structures	4
	CS	4253	Distributed Computing	3
	CS	4413	Algorithm Analysis	3
	SWE	4624	Software Engineering	4
	CS	4894	CS Capstone	4
	Upper-level CS Electives (or Approved UL SWE/IT Electives)			7-8
Directed Electives			18-23 hours	
	TCOM	2010	Technical Writing	3
	MATH	2260	Probability and Statistics I	3
			Approved Upper level Math Elective, 3000 level or above, or MATH 2306, or MATH 2335	3-4
			Approved Science Elective	4
			Approved Science or Math Elective	3-4
Free Electives 2-5 (Can be used to complete Math 2345, Discrete Math, for students who transfer in from a USG institution who have a completed Area F without the equivalent course. May be combined with the free-elective credit in Area F. See your academic advisor for current information.) MATH 1111 may not be used as free elective hours.				
Degree Program Total				122

Computer Science Bachelor of Arts				
Area A	Essential Skills		9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B	Institutional Options		4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C	Humanities/ Fine Arts		6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D	Science, Mathematics, and Technology		11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D	See your advisor before you select science courses		8
Area E	Social Sciences		12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F	(Unused hours from Area A and D and 1 Free elective applied here)		18 Hours	
	CS	1301	Computer Science I	4
	CS	1302	Computer Science II	4
	MATH	2254	Calculus II	4
	MATH	2345	Discrete Math	3
Major Required Courses			31-32 Hours	
	CS	1002	Introduction to the Computing Disciplines	2
	CS	2223	Digital Design	3
	SWE	2642	Professional Practices and Ethics	2
	CS	3123	Programming Language Concepts	3
	CS	3223	Computer Architecture	3
	CS	3243	Operating Systems	3
	CS	3424	Data Structures	4
	SWE	4624	Software Engineering	4
	CS	4894	CS Capstone	4
			Upper-Level CS Elective (or Approved UL SWE/IT Elective)	3-4
Directed Electives			30-31 hours	
	TCOM	2010	Technical Writing	3
	MATH	2260	Probability and Statistics I	3
			Approved Science Elective	4
			Foreign Language (if not taken in the core)	3
			International Studies Minor	15
Free Electives 2-5 (Can be used to complete Math 2345, Discrete Math, for students who transfer in from a USG institution who have a completed Area F without the equivalent course. May be combined with the free-elective credit in Area F. See your academic advisor for current information.) MATH 1111 may not be used as free elective hours.				
Degree Program Total				122

Information Technology

Offering

Bachelor of Science in Information Technology
Master of Science in Information Technology

Information Technology

(Bachelor of Science Degree Offered)

The Bachelor of Science in Information Technology degree has the primary objective of meeting the high demand for professional degrees in the strategy, development, and administration of integrated computing, management, and information technology systems. This offering is targeted at the metro Atlanta region, and will serve those students interested in combining computer science, management, and information technology curricula.

Information Technology (IT) is the term used to describe the convergence of Computer Science, Management, and Information Systems. IT emphasizes the management and performance of information technology planning, development, implementation, and operation, and development of the infrastructure to support the processes necessary to achieve organizational objectives.

The courses in the major include courses from:

- Information technology
- Management
- Computer Science
- Software Engineering.

The degree has Core requirements, major requirements, and required electives. The Major contains those courses considered fundamental to the information technology field and the electives give the student some flexibility in choice. **A grade of "C" or better must be earned in all CS and IT Courses applied to degree requirements**

Information Technology Bachelor of Science				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
OR				
	MATH	2240	Survey of Calculus	4
	Area D	See your advisor before you select science courses		8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F (The extra hour from area A is counted here) 18 Hours				
	ACCT	2101	Accounting I	3
	IET	2227	Statistics	4
	IT	1113	Programming Principles	3
OR				
	CS	1301	Computer Science I	4
	IT	1124	Advanced Programming with Applications	4
OR				
	CS	1302	Computer Science II	4
	MATH	2345	Discrete Mathematics	3
			Unused hour from area A	1
If taking IT 1113 you should follow with IT 1124				

Major Courses			45 Hours	
If taking CS 1301 you should follow with CS 1302				
	CS	1002	Introduction to The Computing Disciplines(institutional credit only)	2

Required Courses				
	SWE	2642	Professional Practices & Ethics	2
	CS	3153	Database Systems	3
	SWE	4324	User Centered Design	4
	TCOM	2010	Technical Writing	3
	MGNT	3105	Management and Organizational Behavior	3
	MGNT	3125	Basic Business Finance	3
Major Courses				
	IT	3124	Hardware/Software Concepts	4
	IT	3224	Software Development Life Cycle	4
	IT	4123	Electronic Commerce	3
	IT	3883	Applications Development using Java	3
	IT	4223	Web Development	3
	IT	4323	Data Communications and Networks	3
	IT	4401	Information Technology Senior Seminar	1
			Free Electives	**6**
Upper Level Technical Electives: Choose 5 from the following list. 3 of these will make a concentration, as shown below. 15 Hours				
Management Concentration				
	MGNT	4185	Technical Management	3
	MGNT	4151	Production and Operations Management	3
	MGNT	4135	Project Management	3
	MGNT	3145	Legal Environment	3
Configuration Concentration				
	IT	3423	OS Concepts and Administration	3
	IT	4333	Network Configuration and Administration	3
	IT	4823	Information Security Administration	3
	IT	4723	IT Policy and Law	3
Advanced Software Development Concentration				
	IT	4683	Management Information Systems	3
	IT	4623	Advanced Software Development	3
	IT	3653	Client Server System Administration	3
	SWE	4663	Software Project Management	3
Degree Program Total				122

Software Engineering

Offering

Bachelor of Science in Software Engineering
Master of Science in Software Engineering

Software Engineering
(Bachelor of Science in Software Engineering Degree)

The undergraduate program in software engineering has the primary objective of preparing a new generation of software developers focused on the engineering of software systems, that is, those systems that meet specified requirements, that are built with industrial quality standards, and that are within cost and schedule requirements.

SWE Program Objectives:

- Have a strong foundation and understanding of the principles of science, mathematics, and engineering which will enable them to apply those principles to their professional activities and growth
- Understand social and ethical issues to increase their sense of responsibility, membership, and awareness in society
- Possess broad and solid foundations in software engineering concepts and methodologies, computer programming, and computing environments so that they can rapidly adapt to changes in technology and engage in life-long learning
- Have skills in organization, management, communication and be effective in teamwork

Program Outcomes:

At the time of graduation, all Software Engineering students will have demonstrated the ability to:

- Apply math, science and CS to the engineering of software systems
- Apply SWE practices and process to software design and development
- Demonstrate the ability to gather, analyze, develop, verify and validate artifacts of SWE systems
- Use software tools effectively in all phases of software development
- Contribute to multi-disciplinary and inter-disciplinary teams in the design, implementation and evolution of software systems
- Demonstrate effective oral and written communication skills
- Independently learn and research new topics in SWE and be capable of independent learning
- Recognize professional responsibility and the application of ethical principles
- Demonstrate an ability to learn new languages, environments, and paradigms for software development
- Recognize the impact their discipline has on society

The degree program includes Core requirements, Computer Science Foundations, the Software Engineering Core, Software Engineering Advanced Topics, Three Application Domains, Directed Electives and Other Required Courses. There is also a specialty track that allows students to choose a specialty area for more concentrated study. The Directed Electives provide depth beyond the Core to support the student's professional preparation

A grade of "C" or better must be earned in all CS and SWE courses applied to degree requirement

Software Engineering Bachelor of Science				
Area A	Essential Skills		9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B	Institutional Options		4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C	Humanities/ Fine Arts		6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D	Science, Mathematics, and Technology		11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D	Take Two Courses From the Laboratory Sciences Group		8
Area E	Social Sciences		12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Sciences	3
	Area E	Group 4	Cultures and Societies	3
Area F	(The extra hour from areas A and D are counted here)		18 Hours	
	SWE/CS	1301	Software Development I/Computer Science I	4
	SWE/CS	1302	Software Development II/Computer Science II	4
	MATH	2260	Probability & Statistics I	3
	MATH	2345	Discrete Mathematics	3
			Free Elective	2
			Unused hours from area A and D	2
Other Required Courses			10 Hours	
	TCOM	2010	Technical Writing	3
	IET	3424	Engineering Economy	3
	PHYS	2211K	Principles of Physics I or PHYS 1111K	4
Introduction to the Discipline			2 Hours	
	CS	1002	Introduction to The Computing Disciplines (for institutional credit only)	2
Computer Science Foundations			19 Hours	
	CS	2223	Digital Design	3
	CS	3223	Computer Architecture	3
	CS	3424	Data Structures	4
	CS	3243	Operating Systems	3
	CS	3153	Database Systems	3

	CS	4263	Computer Networks	3
Software Engineering Core			14 Hours	
	SWE	2313	Introduction to Software Engineering	3
	SWE	2642	Professional Practices & Ethics	2
	SWE	2623	Software Systems Requirements	3
	SWE	3633	Software Systems Architecture	3
	SWE	3643	Software Testing & QA	3
Software Engineering Advanced Topics			11 Hours	
	SWE	4324	User-Centered Design	4
	SWE	4663	Software Project Management	3
	SWE	4724	Software Engineering Project	4
Application Domain Elective: Choose 3 courses – 2 must be SWE (A Domain Certificate is granted if all 3 courses in the same domain are completed) 9/10 Hours				
1. Gaming Systems				
	SWE	4353	Computer Game Design & Development	3
	SWE	4783	User Interaction Engineering	3
	CS	4354	Computer Graphics & Multimedia	4
2. Component Based Software Development				
	SWE	4743	Object-Oriented Development	3
	SWE	4633	Component-Based Development	3
	CS	4253	Distributed Computing	3
3. Embedded System Software				
	SWE	3683	Embedded System Analysis & Design	3
	SWE	3843	Embedded System Construction & Testing	3
	CS	4283	Real-Time Systems	3
Degree Program Total			123/124	

Certificate Programs

Certificate in Programming

The Certificate in Programming prepares students with post-secondary education or several years of work experience, to enter the Computer Programming field as a career change. The focus is on sharpening programming skills. The curriculum involves an on-campus lockstep program that includes two classes per semester for three semesters (6 classes, 22 semester hours). New students may enter the program in either the fall or spring semester. Participants are enrolled in specially scheduled sections. The six classes included in this program are:

- **SWE 1301**
- **SWE 1302**
- **CS 3424**
- **CS 3153**
- **CS 3663**
- **SWE 4624**

School of Engineering Technology and Management

Offering

Bachelor of Applied Science
Bachelor of Science in Electrical Engineering Technology
Bachelor of Science in Apparel/Textile Engineering Technology
Bachelor of Science in Computer Engineering Technology
Bachelor of Science in Electrical Engineering Technology
Bachelor of Science in Industrial Engineering Technology
Bachelor of Science in Management
Bachelor of Science in Mechanical Engineering Technology
Bachelor of Science in Telecommunications Engineering Technology
Bachelor of Arts in Management
Bachelor of Applied Science

Master of Science in Engineering Technology: Electrical
Master of Science in Management of Information Systems
Master of Science in Quality Assurance
Master of Science in Systems Engineering

Master of Business Administration

SCHOOL OF ENGINEERING TECHNOLOGY & MANAGEMENT

The School of Engineering Technology and Management offers a wide range of accredited:

- Bachelor and Master's degrees
- Undergraduate and graduate certificate programs

These academic qualifications are highly respected by the nations leading industries and corporations, with many alumni holding senior managerial and executive positions.

Day and evening classes are offered on the Marietta campus with some classes offered on Saturdays. Classes are also offered through distance learning, on the Internet, and through the University System of Georgia's GSAMS network.

The School of Engineering Technology and Management, offers Bachelor of Science degree programs with majors in:

- Apparel/Textile Engineering Technology
- Computer Engineering Technology
- Electrical Engineering Technology
- Industrial Engineering Technology
- Management
- Mechanical Engineering Technology
- Telecommunications Engineering Technology

The School of Engineering Technology and Management, offers Bachelor of Arts degree programs with majors in:

- Management

Master of Science degree programs are offered with majors in:

- Engineering Technology/Electrical
- Quality Assurance with a Quality Systems Concentration - offered both traditionally and also via the Internet
- Quality Assurance with an Engineering Technology Concentration
- Systems Engineering

A Master of Business Administration (MBA) is also offered.

Certificate programs are available in the following areas:

- Graduate certificate in Quality Assurance
- Graduate certificate in Systems Engineering
- Advanced certificate in Systems Engineering
- Certificate in Apparel Product Development
- Certificate in Engineering Sales
- Certificate in Logistics
- Certificate in Production Design
- Certificate in Quality Principles

Students in the School are active in student government and in collegiate competitive special interest teams. These teams compete successfully at national and international levels. Special interests in the School currently include:

- Aerial robotics
- General robotics
- Open wheel formula racecars
- Simulation
- Students In Free Enterprise (SIFE)
- Submarine Robots
- Super-mileage vehicles

Apparel/Textile Engineering Technology

Offering

Bachelor of Science in Apparel/Textile Engineering Technology

Apparel/Textile Engineering Technology

(Bachelor of Science Degree Offered)

The apparel/textile industry is one of the largest in the United States. Dealing with fibers and their almost innumerable end uses; this vast industrial complex includes:

Fibers found in recreational items	Medical products
Civil engineering applications	Architectural products
Aircraft	Automobiles
Clothing	Home furnishings
Space craft	And Others

From the sourcing and testing of raw materials to the shipment and sale of the finished product, this industry offers creative and challenging careers. There are excellent opportunities for qualified people to move rapidly into executive-level positions. Both apparel and textile concentrations are available for study at SPSU.

APPAREL CONCENTRATIONS:

The Apparel Computer Systems Technology Concentration
Recent advances in computer technology have transformed the creative processes involved in the product development and production of apparel products into a network of computer systems. Students and graduates work with new equipment and technologies, computers and software to create quality products in a fast-paced environment.

The Apparel Systems Technology Concentration
The business of designing, producing/sourcing, and distributing sewn products such as apparel is one of the largest and most important industries in the USA. Excellent starting salaries, rapid advancement, job diversity, and travel are just some of the benefits to apparel technology graduates. The challenge is to use engineering and management principles to create apparel better, faster and more profitably.

TEXTILE CONCENTRATIONS:

The US textile industry is the most efficient high-tech manufacturer of textiles in the world and instrumental in today's global marketplace. Each year the industry invests more than $2 billion in new plants and equipment to remain competitive. Computer-driven operations, robotics, and lasers are common sights in many facilities. The industry offers a wide range of interesting and exciting careers. There is a great demand for scientists, engineers, chemists, and computer specialists as well as technologically trained individuals to manage state-of-the- art equipment.

Students may choose one of the following:

- **Textile Engineering Technology**
- **Textile Chemistry**
- **Textile Management**

Apparel/Textile Engineering Technology - Bachelor of Science				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus (extra hour is applied to area F)	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2253	Calculus I (extra hour is applied to area F)	4
	Area D	See your advisor before you select science courses		8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F (The extra hour from areas A and D are counted here)			18 Hours	
	CHEM	1211K	Principles of Chemistry I	4
	CS	1113	BASIC Programming CS 1301 is required for Apparel Computer Systems Technology Concentration	3
	EG	1210	Survey of Engineering Graphics	2
	ENGL	2010	Technical Writing	3
	IET	2227	Industrial Statistics	4
Major Courses			27 Hours	
	ATET	1000	Orientation	1
	ATET	1040	Introduction to Computers for Textile/Apparel	3
	ATET	1100	Fiber and Yarn Formation	5
	ATET	1300	International Sourcing and Employee Systems	4
	ATET	2500	Fabric Formation	5
	ATET	3200	Production Data Systems	5
	ATET	4440	Testing and Quality Control	4
Concentration (See below)			41-42 Hours	
Degree Program Total				128 or 129

Apparel Computer Systems Technology Concentration			
ACCT	2101	Accounting I	3
ATET	2301	Apparel and Textile Computer Systems I	5
ATET	2600	Equipment/Systems Evaluation and Selection	3
ATET	3602	Apparel and Textile Computer Systems II	5
ATET	4670	Apparel/Textile Production Planning and Scheduling	4
CS	1302	Computer Science II	4
CS	3153	Database Systems	3
CS	4324	User-Centered Design	4
	or		
CS	4624	Software Engineering	
CS	4354	Computer Graphics and Multimedia	4
CS	4683	Management Information Systems	3
SPAN	1001	Elementary Spanish I	3
Area Total			41

Apparel Systems Technology Concentration			
ACCT	2101	Accounting I	3
ATET	2301	Apparel and Textile Computer Systems I	5
ATET	2600	Equipment/Systems Evaluation and Selection	3
ATET	3602	Apparel and Textile Computer Systems II	5
ATET	4670	Apparel/Textile Production Planning and Scheduling	4
ATET	4840	Textile/Apparel Product Manufacturing	2
ECON	1101	Introduction to Economics	3
IET	3339	Statistical Quality Control	3
IET	3424	Engineering Economy	3
IET	4405	Principles of Operations Research	3
IET	4427	Methods-Time- Measurement	3
SPAN	1001	Elementary Spanish I	3
Area Total			42

Textile Engineering Technology Concentration			
ATET	2701	Textile Processing Lab I	1
ATET	2900	Introduction to Textile/Polymer Chemistry **	2
ATET	3300	Introduction to Composite Structures	2
ATET	3700	Carpet Manufacturing	2
ATET	4320	Textile Wet Processing	3
ATET	4330	Textile Processing Lab II	1
ATET	4800	Textile Management Internship	1
ATET	4810	Ethics and Safety	1
ATET	4840	Textile/Apparel Product Manufacturing	2
ECON	1101	Introduction to Economics	3
IET	2432	Engineering Product and Process Cost Estimating I	3
IET	3433	Engineering Product and Process Cost Estimating II	3
IET	4422	Plant Layout and Materials Handling	4
IET	3339	Statistical Quality Control	4
IET	3424	Engineering Economy	3
MATH	2254	Calculus II	4
MGNT	3105	Management and Organizational Behavior	3
PHYS	1111K*	Introductory Physics I	4
PHYS	1112K*	Introductory Physics II	4
Area Total			42

*PHYS 1111K and PHYS 1112K are required for Textile Engineering Technology Concentration. If they are not taken to satisfy Area D, Lab Science requirement, the physics courses will replace IET 4422 and MATH 2254 as requirements.

**CHEM 2510 or CHEM 2511K may be substituted for ATET 2900.

Textile Management Concentration			
ATET	2701	Textile Processing Lab I	1
ATET	2900	Introduction to Textile/Polymer Chemistry **	2
ATET	3300	Introduction to Composite Structures	2
ATET	3700	Carpet Manufacturing	2
ATET	4320	Textile Wet Processing	3
ATET	4330	Textile Processing Lab II	1
ATET	4800	Textile Management Internship	1
ATET	4810	Ethics and Safety	1
ATET	4840	Textile/Apparel Product Manufacturing	2
ECON	1101	Introduction to Economics	3
MGMT	3125	Basic Business Finance	3
MGMT	3135	Marketing	3
MGMT	4151	Production and Operation Management I	3
MGMT	4595	Business Strategy	3
ACCT	2101	Accounting I	3
ACCT	2102	Accounting II	3
MGMT	4145	International Management	3
MGMT	3105	Management and Organizational Behavior	3
Area Total			42

**CHEM 2510 or CHEM 2511K may be substituted for ATET 2900.

Textile Chemistry Concentration			
ATET	2701	Textile Processing Lab I	1
ATET	3300	Introduction to Composite Structures	2
ATET	4320	Textile Wet Processing	3
ATET	4330	Textile Processing Lab II	1
ATET	4810	Ethics and Safety	1
ATET	4840	Textile/Apparel Product Manufacturing	2
ECON	1101	Introduction to Economics	3
CHEM	1212K	Chemistry II	4
CHEM	2511K	Organic Chemistry I	4
CHEM	2512K	Organic Chemistry II	4
CHEM	3100K	Analytical Chemistry	5
CHEM	3300K	Instrumental Analysis	4
CHEM	4111K	Physical Chemistry I	4
MATH	2254	Calculus II	4
PHYS	1111K*	Introductory Physics I	4
PHYS	1112K*	Introductory Physics II	4
Area Total			42

*PHYS 1111K and PHYS 1112K are required for Textile Chemistry concentration. If they are not taken to satisfy Area D, Lab Science requirement, the physics courses will replace ECON 1101, ATET 4810 and MATH 2254 as requirements.

Minor in Apparel/Textile Engineering Technology

To be eligible for a minor in Apparel/Textile Engineering Technology, the student must complete 18 credit hours from the following courses with at least 9 hours of upper division course work:

Minor In Apparel/Textile Engineering Tech (Take 18 hours from the courses below)			
ATET	1040	Introduction to Computers for Textile/Apparel	3
ATET	1100	Fiber and Yarn Formation	5
ATET	2301	Apparel and Textile Computer Systems I	5
ATET	2500	Fabric Formation	5
ATET	2600	Equipment/Systems Evaluation and Selection	3
ATET	3200	Production Data Systems	5
ATET	3300	Introduction to Composite Structures	2
ATET	3602	Apparel and Textile Computer Systems II	5
ATET	3700	Carpet Manufacturing	2

Electrical and Computer Engineering Technology

Offering

Bachelor of Science in Electrical Engineering Technology
Bachelor of Science in Computer Engineering Technology
Bachelor of Science in Telecommunications Engineering Technology
Master of Science in Engineering Technology: Electrical

Computer Engineering Technology

(Bachelor of Science Degree Offered)

Engineering Technology is a branch of engineering education that emphasizes the practical aspects of engineering rather than abstract concepts or theories. It is a blend of the application of science, engineering knowledge, and technical skills used in support of engineering activities. The development of the microcomputer has created a need for engineering technologists with a specialized knowledge of computers and control systems. The bachelor degree in computer engineering technology was created to meet this need.

The degree program in computer engineering technology utilizes a core of mathematics, physics, and electronics courses. These courses provide the scientific and technical background for an in-depth study of the hardware and software aspects of computers and related systems.

The emphasis of the program is on microcomputers and their application to the solution of industrial problems relating to robotics, control, instrumentation, monitoring, data communications, networks, and automated testing.

Graduates of these programs are qualified for employment as engineering technologists with companies that utilize computers in computation and control activities as well as companies that design, manufacture, market, install, and service computers and computer networks.

Suggested areas of special interest:

1. Embedded Systems: (take 2 of the following courses)

ECET 3640	Introduction to Systems Engineering and Robotics
ECET 4630	Digital Signal Processing
ECET 4720	Distributed Micro-controllers and PCs
ECET 4730	VHDL and Field Programmable Gate Arrays

Graduate will specialize in the design and implementation of smart devices used in products ranging from audio to medical to security systems. Both hardware design and programming at the system level will be stressed. The specialist will gain resume skills such as DSP and VHDL design, embedded micro-controller and embedded PC interfacing and programming.

2. Networks: (take 2 of the following courses)

ECET 4710	Network Programming and Interfacing
ECET 4720	Distributed Micro-controllers and PCs
ECET 48XX	BS Telecom 3000-4000 course
ECET 48XX	BS Telecom 3000-4000 course

(Note: ECET 4830 cannot be used as an elective.)

Graduate will specialize in the development and implementation of networks of computers and micro-controllers. Applications include Telemedicine, factory automation systems, point-of-sales systems, and robotics. There will be heavy emphasis of high-level programming using C, Visual C++, JAVA, Visual BASIC, HTML, Windows including NT, LINUX, TCP/IP, etc. Hardware will emphasize PCs and embedded PCs, smart devices, LAN technologies, and remote sensing and control.

Computer Engineering Technology - Bachelor of Science							
Area A Essential Skills			9 hours				
	ENGL	1101	Composition I				3
	ENGL	1102	Composition II				3
	MATH	1113	Pre-calculus (extra hour is applied to area F)				4
Area B Institutional Options			4 hours				
	SPCH	2400	Public Speaking				2
	STS	2400	Science, Technology, and Society				2
Area C Humanities/ Fine Arts			6 hours				
	Area C	Group 1	Take One Course From the Literature Group				3
	Area C	Group 2	Take One Course From the Art and Culture Group				3
Area D Science, Mathematics, and Technology			11 hours				
	MATH	2253	Calculus I (extra hour is applied to area F)				4
	Area D	See your advisor before you select science courses*					8
Area E Social Sciences			12 hours				
	Area E	Group 1	American Context				3
	Area E	Group 2	World History				3
	Area E	Group 3	Behavioral Science				3
	Area E	Group 4	Cultures and Societies				3
Area F (The extra hour from areas A and D are counted here)			18 Hours				
	ECET	1100	Circuits I	1	3		4
	EG	1210	Survey of Engineering Graphics	1	3		2
	TCOM	2010	Technical Writing	3	0		3
	MATH	2254	Calculus II	4	0		4
	MATH	2335	Numerical Methods I	3	0		3
Major Requirements			70 Hours				
	ECET	1000	Orientation	2	0		2
	ECET	1011	Fundamentals	2	3		3
	ECET	1200	Digital I	3	3		4
	ECET	2110	Circuits II	3	3		4
	ECET	2300	Electronics I	3	3		4
	ECET	2210	Digital II	3	3		4
	ECET	2310	Electronics II	3	3		4
	ECET	3220	Digital III	3	3		4
	ECET	3400	Data Communications	3	3		4
	ECET	3600	Test Engineering	3	3		4
	ECET	3410	High Frequency Systems	3	3		4
	ECET	3701	Embedded PC's	3	3		4
	ECET	3810	Applications of C++, JAVA and HTML	2	3		3
	ECET	4610	Introduction to Control Systems	3	3		4
	MATH	2306	Ordinary Differential Equations	3	0		3
	CpET Electives						15
Degree Program Total							130

* Since Physics I and II (PHYS 1111K and 1112K or PHYS 2211K and 2212K) are requirements for the degree and prerequisites to many courses, it is strongly recommended that they be taken to satisfy the Lab Science component of Area D of the Core Curriculum. It is also recommended that you discuss Lab Science options with your assigned faculty advisor or the ECET Department Chair.

NOTE: CpET majors are required to earn a "C" or better in their ECET courses.

Electrical Engineering Technology

(Bachelor of Science Degree Offered)

Engineering Technology is a branch of engineering education that emphasizes the practical aspects of engineering rather than abstract concepts or theories. It is a blend of the application of science, engineering knowledge, and technical skills used in support of engineering activities.

The Electrical Engineering Technology program prepares graduates to enter the technical workforce in a variety of fields. Communications, instrumentation, automation, control systems, power, robotics, computers, and medical electronics are but a few of these fields. Within these fields, Electrical Engineering Technology graduates are typically involved in areas such as: development, design, quality assurance, technical documentation, production, maintenance, test, field service, or technical sales.

EET students are required to take one project-based course as part of their 13 hours of EET electives. Contact the ECET Department to obtain a list of acceptable EET project-based courses. Any non-required upper division (3XXX/4XXX) ECET course, with the exception of ECET 3000 & 4830, may be used for the remainder of their EET electives. Students may also choose one course from outside the major to count as an EET elective. Contact the ECET Department to obtain a list of acceptable courses from outside the major that count as an EET elective.

Students may wish to focus their EET electives in a particular area of Electrical Engineering Technology. Suggested choices in the areas of communications, digital, power, and telecommunications are listed below:

Communications

ECET 4320	ECET 4330	ECET 4420	ECET 4431
ECET 4432	ECET 4450	ECET 4630	ECET 4820

Digital

ECET 3640	ECET 3700	ECET 4630	ECET 4710
ECET 4720	ECET 4730	ECET 4820	

Power

ECET 4510	ECET 4520	ECET 4530	ECET 4540

Telecommunications

ECET 3810	ECET 4820	ECET 4840	ECET 4850

* Since Physics I and II are requirements for the degree, it is strongly recommended that they be taken to satisfy the Lab Science component of Area D of the Core Curriculum. It is also recommended that you discuss Lab Science options with your assigned faculty advisor or the ECET Department Chair.

PHYS 1111K for PHYS 2211K and PHYS 1112K for PHYS 2212K are allowable course substitutions.

For more information about Areas C, D, and E courses, see the "Core Curriculum" section under "Admission Information".
NOTES: EET majors are required to earn a "C" or better in their ECET courses.

Electrical Engineering Technology - Bachelor of Science						
Area A Essential Skills			9 hours			
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (extra hour is applied to area F)			4
Area B Institutional Options			4 hours			
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts			6 hours			
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology			11 hours			
	MATH	2253	Calculus I (extra hour is applied to area F)			4
	Area D	See your advisor before you select science courses* Physics Required.				8
Area E Social Sciences			12 hours			
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F (The extra hour from areas A and D are counted here)			18 Hours			
	EG	1210	Survey of Engineering Graphics	1	3	2
	TCOM	2010	Technical Writing	3	0	3
	MATH	2254	Calculus II	4	0	4
	MATH	2306	Ordinary Differential Equations	3	0	3
	CHEM	1211K*	Principles of Chemistry I	3	3	4
Major Requirements			70 Hours			
	ECET	1000	Orientation	2	0	2
	ECET	1011	Fundamentals	2	3	3
	ECET	1100	Circuits I	3	3	4
	ECET	1200	Digital I	3	3	4
	ECET	2110	Circuits II	3	3	4
	ECET	2300	Electronics I	3	3	4
	ECET	2210	Digital II	3	3	4
	ECET	2310	Electronics II	3	3	4
	ECET	3220	Digital III	3	3	4
	ECET	3400	Data Communications	3	3	4
	ECET	3600	Test Engineering	3	3	4
	ECET	3410	High Frequency Systems	3	3	4
	ECET	3500	Survey of Electric Machines	3	3	4
	ECET	3620	Signals and Systems Analysis	3	3	4
	ECET	4610	Introduction to Control Systems	3	3	4
			EET Electives			13
Degree Program Total						130

Telecommunications Engineering Technology

(Bachelor of Science Degree Offered)

The ever-increasing popularity of the Internet combined with significant advances in communications software and hardware has spawned an immense demand for individuals possessing the knowledge and skills required to design, implement, and maintain computer-networking systems of all types. The BSTCET degree program is designed to provide individuals with the theory and hands-on knowledge necessary to meet that demand.

The degree program is based upon a core of mathematics, physics, and electronics courses. These courses provide the scientific and technical background required for an in-depth understanding of the hardware and software aspects of computers and related systems. Building upon this core, students immerse themselves into several telecommunications-related courses that provide them with a holistic perspective of this behemoth industry.

Although entitled a telecommunications degree, this program covers virtually all aspects of modern computer networking. The student's experience is greatly augmented by numerous hands-on exercises undertaken in the university's state-of-the-art telecommunications laboratory. Providing the graduate of this program with the opportunity to ascend into management, the degree is also comprised of several management-related courses.

Six TCET elective hours are provided in the TCET program, enabling students to customize their program. TCET electives can be one of the following:

ECET 4431	Wireless Communications Systems
ECET 4432	Fiber optic Communications Systems
ECET 4710	Network Programming and Interfacing
ECET 48XX	Any senior-level telecommunications course
MGNT 3125	Business Finance

Telecommunications Engineering Technology - Bachelor of Science						
Area A Essential Skills			9 hours			
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (extra hour is applied to area F)			4
Area B Institutional Options			4 hours			
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts			6 hours			
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology			11 hours			
	MATH	2253	Calculus I (extra hour is applied to area F)			4
	Area D	See your advisor before you select science courses*				8
Area E Social Sciences			12 hours			
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F (The extra hour from areas A and D are counted here) 18 Hours						
	EG	1210	Survey of Engineering Graphics	1	3	2
	TCOM	2010	Technical Writing	3	0	3
	MATH	2254	Calculus II	4	0	4
	MATH	2260	Probability and Statistics	3	0	3
	ECET	1100	Circuits I	3	3	4

Major Requirements			70 Hours			
	ECET	1000	Orientation	2	0	2
	ECET	1011	Fundamentals	2	3	3
	ECET	1200	Digital I	3	3	4
	ECET	2110	Circuits II	3	3	4
	ECET	2300	Electronics I	3	3	4
	ECET	2210	Digital II	3	3	4
	ECET	2310	Electronics II	3	3	4
	ECET	2800	Introduction to Telecommunications	3	0	3
	ECET	3400	Data Communications	3	3	4
	ECET	3410	High Frequency Systems	3	3	4
	ECET	3810	Applications of C++, JAVA and HTML	2	3	3
	ECET	4820	Communications Networks and the Internet	3	3	4
	ECET	4830	Telecommunications Management	3	3	4
	ECET	4840	Advanced Telecommunications	3	3	4
	ECET	4850	Telecommunications Project	3	3	4
	MGNT	3105	Management and Organizational Behavior	3	0	3
	MGNT	4135	Project Management	3	0	3
			TCET Electives			6
	MATH	2306	Ordinary Differential Equations	3	0	3
Degree Program Total						130

* If courses other than Physics are used to satisfy Area D, Lab Science, it is recommended that you discuss course options with your assigned faculty advisor or the ECET Department Chair before taking the annotated courses.

* Since Physics I and II are requirements for the degree, it is strongly recommended that they be taken to satisfy the Lab Science component of Area D of the Core Curriculum. It is also recommended that you discuss Lab Science options with your assigned faculty advisor or the ECET Department Chair.

PHYS 1111K for PHYS 2211K and PHYS 1112K for PHYS 2212K are allowable course substitutions.

For more information about Areas C, D, and E courses, see the "Core Curriculum" section under "Admission Information".

NOTE: TCET majors are required to earn a "C" or better in their ECET courses.

Industrial Engineering Technology

Offering

Bachelor of Science in Industrial Engineering Technology
Master of Science in Quality Assurance
Systems Engineering

Industrial Engineering Technology

(Bachelor of Science Degree Offered)

The field of Industrial Engineering Technology offers the student a challenging career in business, industry, or government. Graduates deal primarily with the efficient management of money, materials, and labor in a business and industrial environment. Career opportunities involve problem solving in the fields of:

- Quality Control
- Production/Materials Management
- Information Systems
- Process Improvement
- Systems Simulation
- Salary and Compensation Plans
- Workplace Design
- Personnel Management
- Occupational Safety and Health
- Project Management
- Economic Analysis/Cost Control

To enable the graduate to solve such a wide variety of business and industrial problems, the curriculum of study is broad and interesting.

Notes:

Note 1 - Physics I is required for the IET degree and is recommended as the Lab Science in the first semester of the second year.

Note 2 - Chemistry I is recommended as the Lab Science in the first semester of the third year.

Note 3 - Professional registration path required MET 3101, ECET 3000, CET 2200. Be taken in place of free electives and three hours of IET electives.

Note 4 – Professional registration path requires MET 3132. Be taken in place of IET 4500.

A grade of "C" or better is required in all courses used in the major prescribed for the bachelor degree program.

Industrial Engineering Technology - Bachelor of Science						
Area A Essential Skills			9 hours			
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (extra hour is applied to area F)			4
Area B Institutional Options			4 hours			
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts			6 hours			
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology			11 hours			
	MATH	2253	Calculus I (extra hour is applied to area F)			4
	Area D	See your advisor before you select science courses*				8
Area E Social Sciences			12 hours			
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F (The extra hour from areas A and D are counted here) 18 Hours						
	PHYS	1112K	Introductory Physics II (See Note 2)	3	2	4
	IT	1113	Programming Principles	3	0	3
	EG	1210	Survey of Engineering Graphics	2	0	2
	ENGL	2010	Technical Writing	3	0	3
	IET	2227	Industrial Statistics	4	0	4
Major Requirements			70 Hours			
			Free Elective (See Note 3)	9	0	9
			IET Electives (See Note 3)	6	0	6
	ATET	4810	Safety & Ethics	1	0	1
	IET	1000	Orientation	1	0	1
	IET	2305	Principles of Industrial Systems/Processes	3	3	4
	IET	2432	Eng Product and Process Cost Estimating I	3	0	3
	IET	3424	Engineering Economy	3	0	3
	IET	3401	Project Organization and Control	2	2	3
	IET	3403	Industrial Experimentation	3	0	3
	IET	3433	Engineering Product and Process Cost Estimating II	3	0	3
	IET	3322	Work Measurement and Ergonomics	2	6	4
	IET	3339	Statistical Quality Control	3	0	3
	IET	4326	Wage & Salary	3	0	3
`	IET	4422	Plant Layout and Materials Handling	2	4	4
	IET	4405	Principles of Operations Research	3	0	3
	IET	4478	Senior Internship	2	6	4
	IET	3334	Production & Inventory Control	3	0	3
	IET	4451	Systems Simulation	2	3	3
	IET	4475	Senior Project	1	6	3
	IET	4500	Technical Science Survey (See Note 4)	4	0	4
Degree Program Total						130

A concentration may be specified by replacing nine hours of free electives and three hours of IET electives with one of the following blocks:

Engineering Management Concentration						
	IET	3410	Principals of Team Dynamics	3	0	3
	IET	4356	Quality Concepts and Systems Design	3	0	3
	MGNT	3105	Management and Organizational Behavior	3	0	3
	MGNT	4185	Technology Management	3	0	3
Concentration Total			12 hrs			

Technical Sales						
	IET	4435	Fundamentals of Engineering Sales	3	0	3
	IET	3430	Industrial and Consumer Marketing	3	0	3
	IET	4375	Engineering Sales Law	3	0	3
	MKTG	4100	Marketing Management	3	0	3
Concentration Total			12 hrs			

Information System						
	MIS	3500	Database Applications	3	0	3
	IET	4555	The Integrated Enterprise	3	0	3
	MIS	4100	Business Systems Analysis and Design	3	0	3
	IET	4447	Purchasing and Supply Chain Systems	3	0	3
Concentration Total			12 hrs			

Services						
	IET	3501	Service Systems Engineering	3	0	3
	IET	4356	Quality Concepts and Design	3	0	3
	IET	4447	Purchasing and Supply Chain Systems	3	0	3
	MGNT	3205	Management Information Systems	3	0	3
Concentration Total			12 hrs			

Minor in Industrial Engineering Technology

To be eligible for a minor in Industrial Engineering Technology, the student must complete the following courses:

IET	2305	Principles of Industrial Systems and Processes	4
IET	4356	Quality Concepts and Systems Design	3
IET	3322	Work Measurement and Analysis	5
IET	3403	Industrial Experimentation	3
IET	4422	Plant Layout and Material Handling	4

Management

Offering

Bachelor of Applied Science
Bachelor of Science in Management
Bachelor of Arts in Management
Master of Science in Management of Information Systems
Masters of Business Administration

Management

(Bachelor of Science, Bachelor of Arts, and Bachelor of Applied Science degrees offered)

The baccalaureate programs in Management prepare students for successful careers in the management of technology-based organizations. Graduates of the program advance into supervisory and management positions in service and industrial enterprises.

The Bachelor of Applied Science degree is designed to cap designated associate degree programs. **Admission to this program requires completion of an associate of applied science or associate of applied technology degree.** The program covers the Common Professional Component in management with additional courses to fulfill the requirements of Areas A through E of the core. This coursework will prepare a candidate for a supervisory role in business or industry.

The Bachelor of Arts in Management program enables Management students interested in international issues the opportunity to complete a minor in International Studies including a foreign language.

The Bachelor of Science in Management program provides students with a strong foundation in the management of business and service enterprises. The program has a technology focus that prepares students for the changing business arena.

Note: Students enrolled in the Management degree programs are expected to maintain a "C" average (2.0 GPA) in their major.

(Bachelor of Applied Science Degree Offered)
This program is designed to cap **appropriate** associate degree programs with a primarily upper-level, broadlybased component at Southern Polytechnic State University.

Admission to the program requires the completion of an associate of applied science or associate of applied technology degree. This program provides a general coverage of management and systems together with written and oral communications coursework to lead a candidate into a supervisory role in business or industry.

Core Curriculum

Bachelor of Applied Science				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2240	Survey of Calculus	3
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Technical Block				
	Transfer credit of up to 38 hours for courses from approved associate degree programs			38

Required Courses			40 Hours*	
	ECON	1101*	Introduction to Economics	3
	MATH	2240*	Survey of Calculus	3
	MGNT	3105	Management and Organizational Behavior	3
	MGNT	3125**	Basic Business Finance	3
	MGNT	3135	Marketing Principles	3
	MGNT	3145	Legal Environment	3
	MGNT	3160	Management Science	3
	MGNT	3205	Management Information Systems	3
	MGNT	3505	Managerial Statistics	3
	MGNT	4115	Human Resource Management	3
	MGNT	4125	Technology and Public Issues	3
	MGNT	4145	International Management	3
	MGNT	4151	Production and Operations Management I	3
	MGNT	4595	Business Strategy	3
			Management Elective(s)	3
			1 hour from MATH 1113 [Area A]	1
Degree Program Total			120	

* Required only of students not taking these courses as a part of the core curriculum. **ACCT 2101 is a prerequisite for MGNT 3125.

Management

(Bachelor of Arts and Bachelor of Science Degrees Offered)

This program will serve the needs of those students who desire undergraduate education in management. Emphasis will be upon productivity as it results from the application of technology and creativity to the process of work within industrial and service enterprises.

The objectives of the program are as follows:

- To prepare Southern Polytechnic State University graduates for successful and productive careers in the management of technology-based organizations and enterprises.

- To develop graduates who possess the knowledge and ability to enhance the competitiveness of business and industry within the State of Georgia through the application of technology to production processes.

- To make available a wide variety of undergraduate management courses at Southern Polytechnic State University so that students in other fields may have the opportunity to take advantage of instruction in this field.

- To increase the institution's value to business, industry, and the State of Georgia by increasing the scope of our technology-based instruction to include the field of management.

Management
Bachelor of Arts Program

Management Bachelor of Arts				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2240	Survey of Calculus	3
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F Business Core			18 hours	
	ACCT	2101	Accounting I	3
	ACCT	2102	Accounting II	3
	ECON	2105	Macro Economics	3
	ECON	2106	Micro Economics	3
	ENGL	2000	Business Communication	3
	MGNT	2201	Introduction to Computer Applications	3
Common Body of Knowledge			24 hours	
	MGNT	3105	Management and Organizational Behavior	3
	MGNT	3125	Basic Business Finance	3
	MGNT	3135	Marketing Principles	3
	MGNT	3145	Legal Environment	3
	MGNT	4115	Human Resources Management	3
	MGNT	4125	Technology and Public Issues	3
	MGNT	4151	Production and Operations Management I	3
	MGNT	4595	Business Strategy	3
Required Courses			18 hours	
	MGNT	3155	Total Quality Management	3
	MGNT	3160	Management Science	3
	MGNT	3205	Management Information Systems	3
	MGNT	3505	Managerial Statistics	3
	MGNT	4145	International Management	3
			Free Elective(s)	2
			1 Hour from MATH 1113 [Area A]	1
Foreign Language and International Studies Minor			18 hours	
Degree Program Total				120

Management
Bachelor of Science Program

Management Bachelor of Science				
Area A Essential Skills			9 hours	
	ENGL	1101	Composition I	3
	ENGL	1102	Composition II	3
	MATH	1113	Pre-calculus	4
Area B Institutional Options			4 hours	
	SPCH	2400	Public Speaking	2
	STS	2400	Science, Technology, and Society	2
Area C Humanities/ Fine Arts			6 hours	
	Area C	Group 1	Take One Course From the Literature Group	3
	Area C	Group 2	Take One Course From the Art and Culture Group	3
Area D Science, Mathematics, and Technology			11 hours	
	MATH	2240	Survey of Calculus	3
	Area D		Any Two Lab Sciences	8
Area E Social Sciences			12 hours	
	Area E	Group 1	American Context	3
	Area E	Group 2	World History	3
	Area E	Group 3	Behavioral Science	3
	Area E	Group 4	Cultures and Societies	3
Area F			18 hours	
	ACCT	2101	Accounting I	3
	ACCT	2102	Accounting II	3
	ECON	2105	Macro Economics	3
	ECON	2106	Micro Economics	3
	ENGL	2000	Business Communication	3
	MGNT	2201	Introduction to Computer Applications	3
Common Body of Knowledge			24 hours	
	MGNT	3105	Management and Organizational Behavior	3
	MGNT	3125	Basic Business Finance	3
	MGNT	3135	Marketing Principles	3
	MGNT	3145	Legal Environment	3
	MGNT	4115	Human Resources Management	3
	MGNT	4125	Technology and Public Issues	3
	MGNT	4151	Production and Operations Management I	3
	MGNT	4595	Business Strategy	3
Required Courses			18 hours	
	MGNT	3155	Total Quality Management	3
	MGNT	3160	Management Science	3
	MGNT	3205	Management Information Systems	3
	MGNT	3505	Managerial Statistics	3
	MGNT	4135	Project Management	3
	MGNT	4145	International Management	3
Electives, Directed Electives Option, or a Minor in Another Discipline – See Options Below				18
Degree Program Total				120

The Management Program offers students the opportunity to select suggested courses in a concentration or to take courses from all of the concentrations. The student must complete a total of 18 hours of concentration and/or elective courses. With additional coursework, a student may complete more than one concentration. Students should request the approval of their advisor and Department Chair to take undergraduate courses outside of the management program.

One hour of excess math credit is applied to each concentration.

Management Elective Option Complete 12 hours of management electives plus 5 hours of free electives.		
MGNT 4075	Healthcare Management	3
MGNT 4140	Management of Networks and Telecommunications	3
MGNT 4152	Production and Operations Management II	3
MGNT 4185	Technology Management	3
MGNT 4195	Current Readings in Management of Technology	3
MGNT 4903	Special Topics	3
MIS 3500	Database Applications	3
MIS 4100	Business Systems Analysis and Design	3
MKTG 3210	Professional Selling	3
MKTG 3224	Business Marketing	3
MKTG 3228	Market Research & Demand	3
MKTG 4100	Marketing Management	3

For students who would like to focus on a specific area of management, we suggest the following groups of electives

1. Management Information Systems

CS 1113	Basic Programming (Visual Basic)
MIS 3500	Database Applications
MIS 4100	Business Systems Analysis and Design
MGNT 4140	Management of Networks and Telecommunications

2. Management of Operations and Technology Management

MGNT	Upper level elective
MGNT 4152	Production and Operations Management II
MGNT 4182	Technology Management
MGNT 4195	Current Readings in Management of Technology

3. Marketing

MKTG 3210	Professional Selling
MKTG 3224	Business Marketing
MKTG 3228	Market Research & Demand
MKTG 4100	Marketing Management

Directed Electives Option Complete 12 hours of approved electives plus 5 hours of free electives.
With advisor approval, students may take four elective courses, three of which must be upper division (at or above the 3000-level). Courses may include Management and other disciplines. For example: A student who is interested in Human Resource Management Could take the Wage and Salary and Team Building courses in IET and the Technical Training course in TCOM plus one additional elective approved by the advisor.

MINOR Complete 15 to 18 hours.
A student may complete the courses required for a Minor in a field other than Management, as spelled out in the catalog. A minor must contain 15 to 18 hours of coursework, with at least 9 hours of upper division coursework.

NOTE: A 2.0 GPA in courses used in the major is required (excluding the international studies minor courses).

Mechanical Engineering Technology

Offering

Bachelor of Science in Mechanical Engineering Technology

Mechanical Engineering Technology

(Bachelor of Science Degree Offered)

Our purpose is to develop students into Mechanical Engineering Technologists capable of applying current engineering concepts to industrial applications. Instruction is in the broad area of technological education, bridging the gap between the research engineer and the skilled craftsman and technician trained in the vocational-technical schools.

Our graduates apply engineering principles to today's industrial needs in the areas of manufacturing, machine design, heating, ventilating and air conditioning, and power production. We emphasize practical, applications-oriented laboratory experience in manufacturing processes and techniques, instrumentation and controls, and equipment and machinery performance testing and evaluation, with particular emphasis on the needs of industries prevalent in the Southeast.

In addition to the common core of courses taken by all MET students, a student may concentrate in an area of specialization by the appropriate choice of elective courses.

General Concentration
The MET bachelor degree with a general concentration permits the selection of five elective courses in the major. It is strongly encouraged (but not required) that students concentrate these five elective courses in one of the following areas to enhance their knowledge and preparation in an area in which they are most interested in working.

Energy Systems/Thermal Systems Design: The Heating, Ventilating, Air Conditioning (HVAC) and Refrigeration area specializes in the design and operation of heat and mass transfer systems which produce the needed environments for manufacturing operations, industrial processes and human comfort.

Systems that utilize mechanical equipment such as pumps, blowers, fans, compressors and heat exchanges are found in fields as diverse as air conditioning, low temperature metallurgy, food preservation, chemical processing and industrial manufacturing.

Graduates of this program are employed as systems designers for consulting firms and mechanical contractors; as manufacturer sales representatives; and as maintenance supervisors.

The Heat/Power area of specialization deals with energy conversion, i.e., the study of internal combustion engines, steam turbines, boilers, air compressors, pumps and fans. The program includes study in thermodynamics, heat transfer and fluid mechanics.

Graduates with this specialty are employed as process plant engineers in the petrochemical and pulp and paper industry; as power generation plant results engineers; as maintenance supervisors; and as sales representatives for manufacturers. Specialty courses in this area include:

MET 3402 Thermodynamics II
MET 4341 Automation Systems and Controls
MET 4411 Refrigeration
MET 4412 Air Conditioning and/or
MET 4431 Plant and Power Applications

Machine/Mechanical Design: This area of specialization is concerned with the application of fundamental principles of design to new and existing machines, machine parts and mechanical structures; the fabricating, testing and assembly of components into production of mechanical systems; and the operation of machines and mechanical equipment.

Graduates may be employed as designers of machinery and/or machine parts for the improvement of production operations and cost; as product designers; as supervisors of fabricating facilities, manufacturing plants, maintenance and repair shops; and as sales and service representatives of industrial and manufacturing firms.

Specialty courses in this area include:

MET 3123 Dynamics of Machines
MET 4124 Vibrations and Advanced Dynamics
MET 4133 Advanced Engineering Materials
MET 4142 Machine Design II
MET 4341 Automation Systems and Controls

NOTE: MET 4801 - 4805 Special Projects and MET 4901 - 4905 Special Topics may also be used to satisfy portions of the above requirements.

Manufacturing Systems
The area of specialization called Manufacturing is concerned with manufacturing production processes and operations: tool and jig design, and the design and layout of manufacturing facilities. Graduates may be employed in areas such as steel production and fabrication, aircraft and automobile fabrication and assembly, cable manufacture, and textile mills.

The MET bachelor degree with a manufacturing concentration is obtained by the appropriate selection of elective courses. These courses emphasize a variety of topics in modern manufacturing and are as shown below. Four courses from the list below must be completed to obtain this designation. A student may take fewer than four of the courses and elect the General Concentration if desired.

MET 3331 Tool Design
MET 4133 Advanced Engineering Materials
MET 4332 Advanced Tool Design
MET 4341 Automation Systems and Controls
MET 4342 Numerical Control of Machines
MET 4351 Manufacturing Systems Design Project

NOTE: In approximately 40 states in the U.S., including Georgia, bachelor degree Engineering Technology graduates with the appropriate work experience are eligible to take examinations for registration as Professional Engineers.

*Since Physics I and II are requirements for the degree, it is strongly recommended that they be taken to satisfy the Lab Science component of Area D of the Core Curriculum. It is also recommended that you discuss Lab Science options with your assigned Faculty Advisor and/or the Mechanical Engineering Technology Department Chair.

NOTES:
1. MET majors are required to earn a 2.0 average in all courses (not a "C" in every course) designated as "MET" and "EG" courses.
2. PHYS 1111K for PHYS 2211K and PHYS 1112K for PHYS 2212K are course substitutions allowed.
3. The Free Elective may not be MATH 1111.
4. For more information about Areas A through E, see the "Core Curriculum" section.

Mechanical Engineering Technology - Bachelor of Science						
Area A Essential Skills			9 hours			
	ENGL	1101	Composition I			3
	ENGL	1102	Composition II			3
	MATH	1113	Pre-calculus (the extra hour is applied to area F)			4
Area B Institutional Options			4 hours			
	SPCH	2400	Public Speaking			2
	STS	2400	Science, Technology, and Society			2
Area C Humanities/ Fine Arts			6 hours			
	Area C	Group 1	Take One Course From the Literature Group			3
	Area C	Group 2	Take One Course From the Art and Culture Group			3
Area D Science, Mathematics, and Technology			11 hours			
	MATH	2253	Calculus I (the extra hour is applied to Major Req.)			4
	PHYS	2211K	Principles of Physics I			4
	PHYS	2212K	Principles of Physics II			4
	NOTE: See your advisor before you select science courses.					
Area E Social Sciences			12 hours			
	Area E	Group 1	American Context			3
	Area E	Group 2	World History			3
	Area E	Group 3	Behavioral Science			3
	Area E	Group 4	Cultures and Societies			3
Area F (The extra hour from area A is counted here)			18 Hours			
	CHEM	1211K	Principles of Chemistry I	3	3	4
	CS	2123	C Programming	2	2	3
	ENGL	2010	Technical Writing	3	0	3
	MATH	2254	Calculus II	4	0	4
	MATH	2306	Ordinary Differential Equations	3	0	3
Major Requirements (The extra hour from area D is counted here)			69 Hours			
	ECET	3000	Electrical Principles	3	3	4
	EG	1211	Engineering Graphics I	3	3	4
	EG	1212	Engineering Graphics II	3	3	4
	MET	1000	MET Orientation	1	0	1
	MET	1311	Manufacturing Processes	3	0	3
	MET	1321	Manufacturing Processes Lab I	1	3	2
	MET	2322	Manufacturing Processes Lab II	2	3	3
	MET	3101	Fluid Mechanics	3	3	4
	MET	3121	Statics	3	0	3
	MET	3122	Dynamics	3	0	3
	MET	3131	Strength of Materials	3	3	4
	MET	3132	Engineering Materials	3	3	4
	MET	3401	Thermodynamics I	3	0	3
	MET	4141	Machine Design I	4	0	4
	MET	4421	Instruments and Controls	3	3	4
	MET	XXXX	Major Elective			12
			Free Elective			3
	One of the following three courses					
	MET	3123	Dynamics of Machines	3	0	3
	MET	3331	Tool Design	3	0	3
	MET	3402	Thermodynamics II	3	0	3
Degree Program Total						129

Minors

Minors

Southern Polytechnic State University offers minors in the following areas:

- Apparel/Textile Engineering Technology
- Biology
- Computer Information Systems
- Computer Science
- Construction
- Industrial Engineering Technology
- Information Technology
- International Studies
- Management
- Mathematics
- Physics
- Spanish
- Technical and Professional Communication

A minor must contain:

- 15 to 18 semester hours of coursework
- With at least 9 hours of upper division coursework

Courses taken to satisfy Core Areas A through E may not be counted as coursework in the minor. Courses taken in Core Area F may be counted as coursework in the minor.

In the following pages, the course requirements for each minor are outlined.

In order to complete a minor, simply take the courses, meet any other requirements, and apply for the minor at the same time you apply for graduation.

Minor in Apparel/Textile Engineering Technology
To be eligible for a minor in Apparel/Textile Engineering Technology, the student must complete 18 credit hours from the following courses with at least 9 hours of upper division course work:

Minor in Apparel/Textile Engineering Technology			
ATET	1040	Introduction to Computers for Textile/Apparel	3
ATET	1100	Fiber and Yarn Formation	5
ATET	2301	Apparel and Textile Computer Systems I	5
ATET	2500	Fabric Formation	5
ATET	2600	Equipment/Systems Evaluation and Selection	3
ATET	3200	Production Data Systems	5
ATET	3300	Introduction to Composite Structures	2
ATET	3602	Apparel and Textile Computer Systems II	5
ATET	3700	Carpet Manufacturing	2
ATET	4320	Textile Wet Processing	3
ATET	4440	Testing and Quality Control	4
ATET	4670	Apparel/Textile Production Planning and Scheduling	4

Minor in Biology

To be eligible for a minor in Biology, the student must complete:
1) A minimum of 18 semester hours of Biology coursework
2) 9 of the 18 hours in Biology must be upper level courses (3000 or above)

3) Students who use BIOL 2107K and/or 2108K to satisfy Core D requirements cannot use these courses to satisfy requirements of the minor

Minor in Computer Information Systems
To be eligible for a minor in Computer Information Systems, the student must complete the following courses with a grade of "C" or better:

Minor in Computer Information Systems			
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
CS	3153	Database Systems	3
IT	4683	Management Information Systems	3
		One additional upper-level IT course	3-4

Minor in Computer Science
To be eligible for a minor in Computer Science, the student must complete the following courses with a grade of "C" or better:

Minor in Computer Science			
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
CS	3424	Data Structures and Algorithm Analysis	4
		Two additional upper-level CS courses	6-7

Minor in Construction
To be eligible for a minor in Construction, the student must complete the following courses:

Minor in Construction			
CNST	2000*	Construction Graphics	3
CNST	3000*	Computer Applications in Construction	2
CNST	3160*	Building Techniques and Methods II	3
CNST	3410	Construction Estimating I	3
CNST	4510	Scheduling	3

*Students having the prerequisite knowledge in these courses may substitute courses of greater or equal credit from the following list with the consent of the CNST Department Chair:

CNST	3411	Construction Estimating Software	2
CNST	3420	Construction Estimating II	4
CNST	3912	Workplace Law	3
CNST	4511	Construction Scheduling Software	2
CNST	4560	Construction Project Management	3
CNST	4710	Construction Safety	4
CNST	4760	Construction Law	3

Minor in Industrial Engineering Technology
To be eligible for a minor in Industrial Engineering Technology, the student must complete the following courses:

Minor in Industrial Engineering Technology			
IET	2305	Principles of Industrial Systems and Processes	4
IET	4356	Quality Concepts and Systems Design	3
IET	3322	Work Measurement and Analysis	4
IET	3403	Industrial Experimentation	3
IET	4422	Plant Layout and Material Handling	4

Minor in Information Technology
To be eligible for a minor in Information Technology, the student must complete 18 credit hours of the following courses with a grade of "C" or better:

Minor Information Technology			
IT	1113	Programming Principles	3
IT	1124	Advanced Programming with Application Development	4
IT	3124	Hardware/Software Concepts	4
IT	3224	Software Development Life Cycle	4
And One of the Following: (Or a course approved by the Department Chair)			
IT	4123	Electronic Commerce	
IT	3883	Applications Development Using JAVA	
IT	4223	Web Development	
MGNT	4140	Management of Networks & Telecommunications	

Minor in International Studies
To be eligible for a minor in International Studies, the student must complete fifteen (15) semester hours from the courses listed below with a grade of "C" or better.

At least nine (9) hours must be upper division courses (3000 or 4000 level courses).

Up to 6 hours may be lower division (1000 or 2000) level but these courses may NOT count BOTH toward a core curriculum requirement and toward the minor. All students receiving the minor in International Studies must complete an SIS 400X, Regional Studies, or SIS 2903, Special Topics, Study Abroad, course.

Lower Division (0-6 hours)			
ANTH	1102	Introduction to Anthropology	3
ECON	1101	Introduction to Economics	3
GEOG	1101	Introduction to Human Geography	3
HIST	1011*	World Civilization: Ancient	3
HIST	1012*	World Civilization: Medieval	3
HIST	1013*	World Civilization: Modern	3
POLS	2401	Global Issues	3
RELG	1200	World Religion	3

- A student can only take one of these courses to fulfill the minor's lower division requirements.

Upper Division (6-12 hours)			
GEOG	3101	World Regional Geography	3
MGNT	4145	International Management	3
POLS	3101	International Political Economy	3
POLS	4101	Political Economy of Post-Communist Transformation	3
PSYC	3101	International Social Psychology	3
SIS	2101	Comparative Politics	3
SIS	3100	Contemporary World Politics	3
SIS	3600	Comparative Culture	3
SIS	3800	Contemporary World History since 1945	3
SIS	3901-3903	Special Topics in International Studies	1-3
SIS	4100	Cross-National Technology Policy Analysis	3
STS	4000	International Issues in Science and Technology	3
STS	4400	Topical Studies in Science and Technology	3

Regional Studies (Take at least ONE of the following:)			
SIS	2901-2903	Special Topics in Studies Abroad	1-3
SIS	4000	Regional Studies/General	3
SIS	4001	Regional Studies/Latin America	3
SIS	4002	Regional Studies/Asia: China	3
SIS	4003	Regional Studies/Asia: Japan	3
SIS	4004	Regional Studies/Middle East	3
SIS	4005	Regional Studies/Russia	3
SIS	4006	Regional Studies/Western Europe	3
SIS	4007	Regional Studies/Africa	3

Note: A student may take more than one Regional Studies course as long as different regions are covered.

Note: A student must also complete a language requirement by testing or demonstrating proficiency in one foreign language or completing FREN 1002, GRMN 1002, or SPAN 1002.

Minor in Management

To be eligible for a minor in Management, the student must complete:

- MGNT 3105 Management and Organizational Behavior
- 12 additional hours of Management electives—at least 6 of the 12 hours must be from upper division courses (3000- and 4000-level)

Minor in Mathematics

To obtain a minor in Mathematics, the student must complete:

- MATH 2255
- MATH 3256
- An additional 11 semester hours of Mathematics courses at the 2300 level or higher

At least 6 of these additional 11 hours must be at the 3000 level or higher.

Courses used to fill other requirements at SPSU (excluding core areas A through E) may also be used to obtain a minor in Mathematics

For example, if you take Math 2306 to fulfill a requirement in the Management curriculum, you may also use it in a math minor. However, you may not use Math 1113 to fulfill the math minor because it is in area A of the core curriculum.

Minor in Physics

To be eligible for a minor in Physics, the student must complete at least 15 hours of course work in physics with at least 10 hours in upper division physics courses.

Minor in Spanish

To be eligible for a minor in Spanish, the student must complete 15 hours of Spanish courses that must include Spanish 2001 and Spanish 2002. The remaining 9 hours must be Spanish courses at the 3000 level.

Minor in Technical and Professional Communication

To be eligible for a minor in Technical and Professional Communication the student must complete 15 hours of technical communication courses, at least 9 of which must be at the 3000 or 4000 level. Students can choose from:

- ARTS 3000
- STS 4000

And any class with the TCOM course prefix. (TCOM 2010 is a prerequisite for most TCOM courses.)

Course Descriptions

Accounting

ACCT 2101
Accounting I
3-0-3

A study of the underlying theory and application of financial accounting concepts.

ACCT 2102
Accounting II
Prerequisite: ACCT 2101
3-0-3

A study of the underlying theory and application of managerial accounting concepts.

Accounting Graduate

ACCT 6000
Managerial Accounting
Prerequisite: MGNT 5653 or ACCT 2101 or equivalent
3-0-3

The course deals with the procedures and concepts of computing and allocating costs for reporting, pricing, planning and control, and internal decision making. It will focus mainly on the principles and techniques dealing with merchandise and manufacturing costing, job order and process costing, standard and conventional costing, and make or buy decision-making.

Anthropology

ANTH 1102
Introduction to Anthropology
3-0-3

Introduction to basic cultural anthropological concepts emphasizing the differences and similarities in contemporary human behavior in Western and non-Western societies. Course includes lectures and case studies.

Apparel/Textile Engineering Technology

ATET 1000
Orientation
1-0-1

Provides ATET students and students majoring in other degree programs an overall introduction to the apparel and textile industry, career opportunities in Apparel/Textile Engineering Technology, familiarization with college and departmental policies, curriculum, and facilities. All phases of apparel and textile manufacturing will be covered from receipt of raw material to the manufacturing and distribution of the finished product. An introduction to Total Quality Management (TQM) is included.

ATET 1040
Introduction to Computers for Textile/Apparel

2-3-3

Introduction to computers, including word processing, spreadsheets, and other software tools for problem solving in textile/apparel applications and information/knowledge management.

ATET 1100

Fiber and Yarn Formation
Prerequisite: CHEM 1211K
5-0-5

A study of the major chemical and physical properties of natural and man-made fibers. Emphasis is on the fiber's end uses, with particular stress on the properties the fibers give to fabric hand, drape, wrinkle resistance, wear properties, and permanent use. Fundamental principles of processing natural and man-made staple fibers into yarns: basic properties of spun and filament yarns.

ATET 1300

International Sourcing and Employee Systems
3-2-4

The evaluation of international sourcing strategies including transportation, domestic production, 807 operations, foreign investment, foreign purchase, turn time, competitive advantage, communications, production capabilities, cultural priorities, political influence, international regulations and alliances, costs, quality and technology. The processes of garment finishing, inspecting, coloration, special finishes and shipping the finished product and the principles of marketing and distribution to a global market are discussed. The systems used to recruit, interview, select, train and retain operating personnel including supervision and management are presented. These systems include ergonomics, interactive training, programmed instruction, employee empowerment and human resources.

ATET 2301

Apparel and Textile Computer Systems I
Prerequisites: ATET 1040, EG 1210
2-6-5

The use of computer systems to develop the product information for apparel/textile products including source materials, processing and assembly options, fabric and embroidery design, pattern development, sizing theory, garment fit and product development. Includes developing apparel patterns, grade rules, flat patterns, slopers, seam allowances, size scales, and quality specifications. The student develops complete sets of commercial apparel patterns utilizing manual and computer systems. Principles of material utilization, pattern engineering and fabric consumption are emphasized in all subject areas.

ATET 2500

Fabric Formation
Prerequisites: ATET 1100, PHYS 1111K
5-0-5

Theory and practice of warping and slashing, elements of fabric design, fabric analysis, the physics of loom motions including shuttle and shuttleless looms and the elements of fabric geometry and fabric cover are included. The principles of circular, flat, warp, and double-knits and the fundamentals of nonwoven systems are covered.

ATET 2600

Equipment/Systems Evaluation and Selection
2-3-3

Includes studies of stitch formation, seam application, and thread characteristics as they relate to the apparel/textile product and the cost considerations in the selection of appropriate machinery. Presents a survey of industrial sewing equipment, tabling, and auxiliary equipment for apparel/textile production as well as analyzing and evaluating attachments and automated systems for their qualitative and quantitative potentials. Includes studies of the lease/purchase options and construction analysis for operator training methods as well as presentations on material handling, cutting systems, quality assurance and return on investment analysis.

ATET 2701

Textile Processing Lab I
Prerequisites: ATET 1100, ATET 2500
0-3-1

Manufacturing and management operations in the textile industry.

ATET 2900

Introduction to Textile/Polymer Chemistry
Prerequisite: CHEM 1211K
2-0-2

An introduction to the chemistry of polymer and textile fibers, preparation agents, dyes, and finishes. Survey of Organic Chemistry (CHEM 2510) may be substituted for this course.

ATET 3200

Production Data Systems
Prerequisite: ATET 2500 or ATET 2600
3-4-5

Provides an understanding of the uses of work measurement and its limitations, human abilities, expected performance levels, pace rating, computation of time standards, electronic time study equipment, and computerized standard data systems. Laboratory assignments include determination of product costs, analysis of actual and standard costs, and determination of overhead cost items. Topics include distribution of human abilities, expected performance levels, pace rating systems, computation of time standards and their application to cost control, production planning and wage incentives.

ATET 3300

Introduction to Composite Structures
Prerequisites: CHEM 1211K, PHYS 1111K
1-3-2

Introduces the student to basic types of composites construction with emphasis on typical component materials used and typical manufacturing techniques utilized in industry.

ATET 3602

Apparel and Textile Computer Systems II
Prerequisites: ATET 2301, ATET 2500
2-6-5

Principles and methods used in the preparation, planning, and cutting of fabrics and materials in apparel/textile products are presented including preparatory processes related to fabric cutting. Presents basic principles and computer methods of calculating, designing, and making pattern markers for apparel/textile products including yardage, cost estimation, and garment and fabric specification. Laboratory work includes developing cost and quality factors and the operation of equipment for inspecting, marking, shading, fabric defects, spreading, cutting and ply numbering. A systematic appraisal of the factors governing economical fabric use, including: in-depth study of the relationship of pattern make-up to fabric consumption; the impact of width variation to total consumption; and the relationship of all fabric defects to total utilization is presented.

ATET 3700

Carpet Manufacturing
Prerequisites: ATET 1100, ATET 2500
2-0-2

A study of carpet manufacturing technology with emphasis on fibers, yarns, and cords used in the manufacture of carpets; carpet material and carpet manufacturing processes; carpet design and construction; dyeing, printing, and finishing; and evaluation.

ATET 3901-3905

Special Topics
Prerequisite: Consent of the department head
1 to 5 hours

Special problems selected by the department. Offered on a demand basis.

ATET 4320

Textile Wet Processing
Prerequisites: ATET 2500, ATET 2900 or CHEM 2510, CHEM 1211K
3-0-3

The chemical, thermal, and mechanical processes used in the preparation, coloration, and finishing of textile structures.

ATET 4330

Textile Processing Lab II
Prerequisite: ATET 4320
0-3-1

Textile dyeing and finishing operations.

ATET 4440

Testing and Quality Control
Prerequisites: ATET 2500, IET 2227
3-3-4

Fundamentals of the testing methods normally found in the plant laboratory including Uster Evenness Tester, Spinlab HVI System, twist tests, various fiber, yarn and fabric ASTM, AATCC, and Federal Standards test methods plus statistical analysis of the test results including statistical process control methods.

ATET 4670

Apparel/Textile Production Planning and Scheduling
Prerequisites: ATET 2301, ATET 2600
3-3-4

Evaluation of the comprehensive factors that determine planning, scheduling and production of apparel/textile products. Analysis includes the determination of production methods, equipment, personnel, materials, training, manufacturing capacities, lead times, and delivery schedules. Laboratory assignments include the use of computers in predicting, gathering, manipulating, analyzing, and managing production by planning the optimum production cycle for a product from receipt of raw materials to the finished item.

ATET 4800

Textile Management Internship
Prerequisite: ATET 2500
0-3-1

Students participate in an internship at an industrial site to receive management training and to be involved with corporate activities such as sales, marketing, management and human resources.

ATET 4810

Ethics and Safety
Prerequisite: Senior standing or consent of the department head
1-0-1

Students are provided information pertaining to ethics and safety regulations applicable to the textile industry.

ATET 4840

Textile/Apparel Product Manufacturing
Prerequisites: ATET 4670 or IET 3339, senior standing
1-3-2

This course is designed to provide the student with integrated knowledge from previous courses. The course focuses on the planning and control functions required in textile and apparel production systems, including design of facilities, inventories, and planning. A formal written report and oral presentation will be evaluated by faculty and industry representatives.

ATET 4901-4905

Special Topics
Prerequisite: Consent of the department head
1 to 5 hours

Special problems selected by the department. Offered on a demand basis.

Architecture

ARCH 3011

Architecture Studio I
Prerequisite: Acceptance into the professional program and portfolio review
1-9-4

This course builds on the previous studio course's emphasis on space making and introduces the integration of building technology into the design process. Assignments
focus on the expressive use of wood and steel within rural and light urban site contexts.

ARCH 3012

Architecture Studio II
Prerequisite: ARCH 3011
1-9-4

This course is a continuation of ARCH 3011 and the integration of technology. Students design a small scale project usually in a dense urban setting. Emphasis in placed on site context and systems and materials research in support of design intent. The first half of the semester is devoted to project design and the latter half is spent examining the construct of the design through large scale models.

ARCH 3112

Architecture Culture II - The Renaissance through 1850
3-0-3

A continuation of Architecture Culture, examining the relationship between architecture and other cultural discourses such as philosophy, aesthetics, science, religion, politics and technology. While continuing in the aim of developing an understanding of how architecture manifests the socio-cultural conditions of a given moment in aesthetic form, simultaneously examines the development of an autonomous architecture culture, one that we refer to as theory.

ARCH 3113

Architecture Culture III - 1850 through 1945
3-0-3

A continuation of the Architecture Culture series, additionally examining the relationship between architecture and other cultural discourses such as philosophy, aesthetics, science, religion, politics and technology. While continuing in the aim of developing an understanding of how architecture manifests the socio-cultural conditions of a given moment in aesthetic form, it takes as its central concern the search for a definition of 'Modernity', and how it might be translated into a style. Particular attention is paid to the various 'isms' of the Modern Movement and the key historical figures that shaped them.

ARCH 3211

Building Technology
Prerequisite: DFN 2211
2-0-2

This course is a continuation of DFN 2211, with emphasis on gravity loads and basic design of wood structural components including beams, columns, and trusses. Engineered wood products, glue-laminated, and connections are also covered.

ARCH 3212

Building Technology II
Prerequisite: ARCH 3211
2-3-3

This course is a continuation of ARCH 3211 with the design of steel structural members, connections and statically determinate structural steel systems. Approximate analysis of rigid frames is introduced and the student learns to use "pre-packaged" computer programs to input data and evaluate results.

ARCH 3221

Environmental Technology I
1-3-2

This course studies site engineering standards and legal issues related to the development of building sites. The course focuses on zoning, building placement, rough grading, vehicular and pedestrian circulation and storm water management.

ARCH 3222

Environmental Technology II
Prerequisite: ARCH 3221
2-3-3

A study of the connection between basic human comfort and building form, orientation and envelope material. Energy consumption and energy code compliance is examined. Selection and configuration of major mechanical systems is examined in the contexts of building typology, spatial configuration, and life cycle cost.

ARCH 3311

System Selection and Documentation
2-3-3

This course introduces basic structural and enclosure systems which includes selection criteria. Emphasis is placed on wood, steel, masonry, and concrete structural systems as well as major enclosure systems. The course also introduces the graphics, drawing conventions and purpose of contract documents.

ARCH 35X2- 35X4*

Applied Architectural Research I
Prerequisite: ARCH 3501
1 to 4 hours

Students select independent research projects that provide them with the opportunity to explore an area of professional interest for credit. The faculty must approve all research projects. May be repeated twice when topics vary.

ARCH 39X1-39X4*

Special Topics
1 to 4 hours

This course provides an opportunity for a group of students to undertake in-depth study under the direction of a member of the full-time faculty or visiting faculty. Areas of study may include extension and enhancement of material offered in required architecture courses or exploration in an area of professional interest not covered by, but directly related to, material covered in the third year architecture courses. May be repeated twice when topics vary.

ARCH 4013

Architecture Studio III
Prerequisite: ARCH 3012
0-12-4

This course focuses on the design of multi-use projects with emphasis on the integration of construction technology and the application of knowledge acquired in the concurrent history theory course sequence. It emphasizes urban revitalization and mixed use design and development as an underlying studio thematic. The studio uses a three tier strategy.

ARCH 4014

Architecture Studio IV
Prerequisite: ARCH 4013
0-12-4

This course continues with the students undertaking a studio problem in architectural design of multi-use project with emphasis on the integration of technology and the application of knowledge acquired in the concurrent Architectural Theory course.

ARCH 4114

Architectural Theory I - The Questioning of Modernity
Co-requisite: ARCH 4013
2-0-2

A continuation of the Architecture Culture sequence, this course examines through lectures and student led seminars, the development of issues and questions that began to undo the dogma of the Modern movement, exploring topical issues raised by architects, historians and critics alike that help to formulate alternative strains of Modernism.

ARCH 4115

Architectural Theory II - The Post-Modern Condition
Prerequisite: ARCH 4114
2-0-2

A continuation of the Architecture Culture sequence, this course concerns itself with the rise of alternative positions in the contemporary architectural debate. It examines through lectures and student led seminars, issues raised by architects, historians and critics that have formulated alternative theoretical approaches to contemporary architecture and design.

ARCH 4213

Building Technology III
Prerequisite: ARCH 3212
2-0-2

This course is a continuation of ARCH 3212 with emphasis on reinforced, poured-in-place concrete as a building and structural material. Students will also be introduced to pre-cast, pre-stressed and post-tensioned concrete systems and components.

ARCH 4214

Building Technology IV
Prerequisite: ARCH 4213
2-0-2

This course will provide students with the opportunity to investigate code requirements and current innovations in the design and construction of building systems subject to wind and earthquake loads.

ARCH 4223

Environmental Technology III
Prerequisite: ARCH 3222
2-3-3

This course is a continuation of ARCH 3222 with emphasis on building electrical distribution systems and lighting.

ARCH 4312

Code
Prerequisites: ARCH 4213, ARCH 4223
2-0-2

This course is an introduction to the Standard Building Code, N.F.P.A. 101 and A.D.A. Emphasis is placed on theory of building safety, code document organization and the application of codes to actual buildings.

ARCH 45X1-45X4*

Applied Architectural Research II
Prerequisite: ARCH 3501
1 to 4 hours

Students select independent research projects that provide them with the opportunity to explore an area of professional interest for credit. All research projects must be approved by the faculty. May be repeated twice when topics vary.

ARCH 49X1-49X4*

Special Topics
Prerequisite: Admission to the professional program
1 to 4 hours

This course provides an opportunity for a group of students to undertake in-depth study under the direction of a member of the full-time faculty or visiting faculty. Areas of study may include extension and enhancement of material offered in required architecture courses or exploration in an area of professional interest not covered by, but directly related to, material covered in fourth year architecture courses. May be repeated twice when topics vary.

ARCH 5015

Architecture Studio V
Prerequisite: ARCH 4014
1-9-4

Students are required to design multipurpose architectural environments in response to a complex set of criteria. Design solution should demonstrate an investigation and application of urban design principles, theories and philosophies.

ARCH 5116

Urban Planning and Design Theory
Co-requisite: ARCH 5015
2-0-2

This course examines the evolution of modern cities and the major issues and problems confronting metropolitan centers. Emphasis will be placed on culture, economics, natural environment, and their influence on urban form.

ARCH 5313

Professional Practice and Ethics
Prerequisite: 5th year standing in the professional program,
Co-requisite: ARCH 3232
3-0-3

Study of professional ethics, laws governing the practice of architecture, and contractual relationships are undertaken in this course.

ARCH 5593

Diploma Project Research
Prerequisite: ARCH 3501
2-3-3

Faculty approved, independent research projects that require students to select, research, and program a diploma project subject. Results of this course must be presented and approved by the faculty prior to admission to ARCH 5999.

ARCH 59X1-59X4*

Special Topics
Prerequisite: Admission to the professional program
1 to 4 hours

This course provides an opportunity for a group of students to undertake in-depth study under the direction of a member of the full-time faculty or visiting faculty. Areas of study may include extension and enhancement of material offered in required architecture courses or exploration in an area of professional interest not covered by, but directly related to, material covered in fifth year architecture courses. May be repeated twice when topics vary.

ARCH 5999

Diploma Project
Prerequisite: ARCH 5593
1-12-5

Students execute and present a faculty approved terminal project in this course. Projects are developed from programmatic research, performed in ARCH 5593, to completed design development and documented in a manner acceptable for publication. *X denotes the program area for the special topic of applied research. 0-Design, 1-History/Theory, 2-Building Technology, 3-Practice/Management/Marketing, 4-Real Estate, 5-Land Development, 6-Environmental Studies, 7-Planning/Urban Design, 8-Facilities Management, 9-Human Factors.

Arts

ARTS 2001

Art Appreciation
Prerequisite: ENGL 1101
3-0-3

Appreciation of visual arts is developed through an introduction to the aesthetics, criticism, history, and production of visual art in the Western world. Some non-Western art will be included.

ARTS 2002

Drama Appreciation
Prerequisite: ENGL 1101
3-0-3

Survey of drama as a performing art, considering both literary and nonliterary elements. Some non-Western drama will be included. In addition, attendance at one or more live dramatic performances will be required.

ARTS 2003

Music Appreciation
Prerequisite: ENGL 1101
3-0-3

Survey of music in the Western world, including historical movements and basic musical notation. The course also covers some non-Western music, as well as contemporary, classical, and popular music.

ARTS 2004

History of Contemporary American Music
Prerequisite: ENGL 1101

Survey of the development of contemporary American music genres from a historical and analytical perspective from the beginnings of American contemporary styles in the late nineteenth century to the present. Additionally, the course examines the social and historical context of various cultures in the American mosaic of people in the present time, especially the two primary cultures: those of European

and African ancestries. Includes a music listening component and further develops some of the topics covered in ARTS 2003.

ARTS 2010

Introduction to Drawing
Studio Course; open to all students
2-3-3

Regardless of drawing experience, students will develop drawing skills using pencil, ink, and charcoal to master shading, contour, gesture, and perspective techniques.

ARTS 2901-2903

Special Topics
1 to 3 hours

Special topics in the arts - especially music, art, or drama. Offered by the program at its discretion.

ARTS 3000

Visual Thinking
Prerequisites: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Study of visual thinking as an alternative to and enhancement of verbal and mathematical thinking. Helps students develop creative problem-solving skills by (1) analyzing types of conceptual blocks, and (2) developing techniques that use order and visual coherence to overcome these blocks. Students may be required to produce graphic solutions to problems; however, prior drawing experience is not required.

Astronomy

ASTR 1000K

Introduction to the Universe
3-2-4

A survey of the universe, examining the historical origins of astronomy; the motions and physical properties of the Sun, Moon, and planets; the formation, evolution, and death of stars; and the structure of galaxies and the expansion of the universe. Laboratory exercises supplement classroom work.

Biochemistry

BIOC 3111K
Biochemistry I
Prerequisite: CHEM 2512K
3-3-4

An introduction to the structure, chemistry and metabolism of biomonomeric molecules, with emphasis on monosaccharides, amino acids and fatty acids. Laboratory exercises supplement classroom work.

BIOC 3112K
Biochemistry II
Prerequisite: BIOC 3111K
3-3-4

Continuation of Biochemistry I, with emphasis on the structure, chemistry and metabolism of biomacromolecules, biopolymers/biocomplexes. Laboratory exercises supplement classroom work.

BIOC 3115K
PHYSICAL BIOCHEMISTRY
Prerequisite : BIOC 3111K
3-3-4

General principles of biomolecular thermodynamics, cryogenics, kinetics, homeostasis, electrodynamics, and ultrasonics, and their applications to biological systems. Laboratory exercises supplement classroom work.

BIOC 3901-3905
Special Topics
1 to 5 hours

Special topics selected by the department. Offered on a demand basis.

BIOC 4901-4905
Special Topics
1 to 5 hours

Special topics selected by the department. Offered on a demand basis.

Biology

BIOL 2107K
Biological Principles I
3-3-4

An introduction to biology including the chemistry of life, cell structure and functions, bioenergetics, genetics, basic statistics, biotechnology, and evolution. The laboratory exercises supplement the class work.

BIOL 2108K
Biological Principles II
Prerequisite: BIOL 2107K

3-3-4

Topics include organ system anatomy and physiology, a survey of the diversity of life, animal behavior, and ecology. The laboratory exercises supplement the class work.

BIOL 3000K

Genetics
Prerequisite: BIOL 2107K
3-3-4

Structure, function, regulation, and transmission of hereditary information in viruses, prokaryotes, and eukaryotes. Laboratory includes exercises in both classical and molecular genetics.

BIOL 3100K

Microbiology
Prerequisite: BIOL 3000K, BIOC 3111K
3-3-4

The morphology, physiology, genetics and biochemistry of microorganisms with emphasis on bacteria and viruses. Laboratory exercises supplement classroom work.

BIOL 3200K

Biotechnology
Prerequisite: BIOL 3310K
1-9-4

Application of modern molecular biochemical techniques and principles in a project-based laboratory setting. Students will use recombinant DNA technologies to pursue research projects, present results in informal group meetings, and be responsible for keeping records of all experiments and data for possible publication in research journals. May require additional time outside of the scheduled lab hours.

BIOL 3201

Biophysics I
Prerequisite or concurrent: BIOC 3111K
3-0-3

An introduction to the biophysics of living systems with emphasis on growth, energy transduction, transport processes, light and vision.

BIOL 3202

Biophysics II
Prerequisite: PHYS 3001
3-0-3

A continuation of Biophysics I with emphasis on the biophysical aspects of contractile and neural systems, kinesiology, biomedical applications of radiation, thermal, magnetic resonance and sonic techniques.

BIOL 3300

Ecology
Prerequisite: BIOL 2108K
3-0-3

An examination of the relationship of organisms with their abiotic and biotic environments. Population, community, and ecosystems interactions are evaluated from both ecological and environmental perspectives.

BIOL 3310K

Molecular Biology
Prerequisite: BIOL 3000K
3-3-4

Examination of the synthesis, function and modification of nucleic acids. Includes gene expression and regulation with an emphasis on experimental approaches used to study them. Laboratory exercises use modern techniques to reinforce lecture material and may require additional time outside of the scheduled lab hours.

BIOL 3400K

Cell Physiology
Prerequisite: BIOL 2108K
3-3-4

An overview of the structure and function of cells and their organelles. Includes membrane structure and transport, catabolism, energy metabolism, photosynthesis and biosynthesis. Laboratory exercises use modern techniques to reinforce lecture material.

BIOL 4100K

Entomology
Prerequisite: BIOL 2108K
3-3-4

An overview of the study of insects including: functional anatomy and physiology, life histories, taxonomy, behavior, ecology, insects as vectors of pathogens, chemical and biological control of pests.

BIOL 4200K

Zoology
Prerequisite: BIOL 2108K
3-3-4

A survey of the animal phyla emphasizing morphology, life histories, ecology, evolution, behavior, and coordination of structure and function.

BIOL 4400K

Anatomy & Physiology I
Prerequisite: BIOL 2108K
3-3-4

A study of the development, structure, and function of human chemical, cellular, tissue, and organismic organization, with special emphasis on integumentary, skeletal, muscular, cardiovascular, and CNS/PNS neurological systems. Laboratory exercises supplement classroom work.

BIOL 4410K

Immunology
Prerequisite: BIOL 3000K, BIOC 3111K
3-3-4

Biology of the immune system including structure and function of antibodies, antibody-antigen interactions and the cellular and physiological consequences of the immune response. Laboratory exercises use modern techniques to reinforce lecture material and may require additional time outside of the scheduled lab hours.

BIOL 4440K

Botany
Prerequisite: BIOL 2108K
3-3-4

A survey of land plants, with emphasis on the ecology, field identification, economic importance, and natural history of these organisms. Laboratory exercises supplement classroom work.

BIOL 4460K

Anatomy & Physiology II
Prerequisite: BIOL 4400K
3-3-4

A continuing study of the developmental, structural, functional, and metabolic aspects of human chemical, cellular, tissue, and organization, with special emphasis on ANS/ENS neurological, endocrine, lymphatic, immune, respiratory, urinary, and reproductive systems. Laboratory exercises supplement classroom work.

BIOL 4470

Plant Physiology
Prerequisite: BIOL 3000K, BIOC 3111K
3-0-3

Introduction to plant physiology, including biochemical, genetic and developmental aspects of the plant life cycle. Topics include: photosynthesis, respiration, metabolism, water relations, plant hormones, embryogenesis and early development, flowering, stress physiology, response to pathogens and plant genetic engineering.

BIOL 4480

Evolution
Prerequisite: BIOL 2108K
3-0-3

Origins of life-mechanisms and processes of organic evolution stressing evidence from population genetics, systematics, paleontology, and comparative physiology; biochemistry; the evolution of humans and human culture.

BIOL 4500K

Bioinformatics I
Prerequisites: MATH 2253, BIOC 3111K, BIOL 3310K
3-3-4

The course covers concepts and methods related to information processing in biological systems. Concepts covered include homology, identity and similarity; mechanisms and measures of molecular evolution; introduction to data bases; search algorithms; pairwise sequence alignment using dynamic programming; progressive methods for multiple alignment.

BIOL 4510K

Bioinformatics II
Prerequisite: BIOL 4500K
3-3-4

The course covers use of homology to extract information about structure and function from amino acid, DNA and RNA sequences. Concepts covered include structural homology, structural motifs and databases, homology modeling of macromolecules, energy minimization and relaxation, molecular docking, and introduction to molecular dynamics.

BIOL 4700

Internship
Prerequisite: Junior standing
3-0-3

An opportunity for students to apply principles and techniques of biology in a specific organization. The student is responsible for finding an internship, but the biology program office will assist. The student must submit a written proposal describing the internship according to department guidelines. Each internship is monitored by the student's advisor.

BIOL 4900-4905

Special Topics
Prerequisite: senior standing or permission of department
1-5

Special research projects offered by the program faculty on a student demand/need basis.

Chemistry

CHEM 1211K
Principles of Chemistry I
Prerequisite: MATH 1111
3-3-4

First course in a two-semester sequence covering the fundamental principles and applications of chemistry designed for science majors. Topics to be covered include composition of matter, stoichiometry, periodic relations, and nomenclature. Laboratory exercises supplement the lecture material.

CHEM 1212K
Principles of Chemistry II
Prerequisite: CHEM 1211K
3-3-4

Second course in a two-semester sequence covering the fundamental principles and applications of chemistry designed for science majors. Laboratory exercises supplement the lecture material.

CHEM 2211K
Environmental Chemistry
Prerequisite: CHEM 1211K
3-3-4

This course emphasizes the source, transport, reactions and fate of pollutants and natural chemical substances that enter or compose the aquatic, air, and soil environments. Laboratory exercises focus on water and wastewater analysis.

CHEM 2510
Survey of Organic Chemistry
Prerequisite: CHEM 1211K
3-0-3

A survey of the chemistry of the compounds of carbon. Topics include a study of the synthesis, reactions, and properties of acyclic and cyclic compounds and their derivatives.

CHEM 2511K
Organic Chemistry I
Prerequisite: CHEM 1211K
3-3-4

An introduction to the chemistry of the compounds of carbon. Topics include a study of the synthesis, reactions, reaction mechanisms, and properties of acylic and cyclic compounds and their derivatives. Laboratory exercises supplement classroom work.

CHEM 2512K

Organic Chemistry II
Prerequisite: CHEM 2511K
3-3-4

A continuation of the study of organic molecules. Topics include a survey of heterocycles, natural products and synthetic polymers. Laboratory exercises supplement classroom work.

CHEM 3100K

Analytical Chemistry
Prerequisite: CHEM 1212K
3-6-5

An introduction to classical and instrumental methods of quantitative analysis and their underlying principles. Laboratory exercises supplement classroom work.

CHEM 3300K

Instrumental Analysis
Prerequisite: CHEM 3100K
2-6-4

Principles of operation and application of instrumental methods including ultraviolet/visible and infrared spectroscopy, atomic absorption and emission, nuclear magnetic resonance spectroscopy, chromatography, and electrochemistry. Laboratory exercises supplement classroom work.

CHEM 3901-3905

Special Topics
1 to 5 hours

Special topics selected by the department. Offered on a demand basis.

CHEM 4111K

Physical Chemistry I
Prerequisites: CHEM 1212K, MATH 2254
3-3-4

An introduction to the physical laws, theoretical principles, and mathematical relationships in chemistry, particularly in regard to chemical thermodynamics, equilibrium, electrochemistry, and changes of state. Laboratory exercises supplement classroom work.

CHEM 4112

Physical Chemistry II
Prerequisite: CHEM 4111K
3-0-3

A continuation of the coverage begun in Physical Chemistry I. Topics include chemical kinetics, an introduction to quantum mechanics, and statistical mechanics. The laboratory is optional.

CHEM 4112L

Physical Chemistry II Lab
Prerequisite: CHEM 4111K,
Co-requisite: CHEM 4112
0-3-1

Laboratory exercises which complement the material covered in CHEM 4112, Physical Chemistry II.

CHEM 4901-4905

Special Topics
1 to 5 hours

Special topics selected by the department. Offered on a demand basis.

Civil Engineering Technology

CET 1001

Orientation to CET Profession
1-0-1

Introduction to Civil Engineering Technology field; career opportunities; educational spectrum; and professional options. Includes program policies and expectations for student majors.

CET 1002

Orientation to CET Computer Practices
Prerequisite: MATH 1113
0-2-1

A general introduction to computer methods and tools used in practice. Various software applications including spreadsheets, word processors and network programs will be covered.

CET 2160

Civil Graphics and Computer Aided Drafting
0-6-3

An introduction to graphic principles and practices in civil engineering technology. This course includes the development of the basic drafting skills needed to produce civil engineering plans and graphical presentations. The elements of descriptive geometry are addressed. A major component of the course is an introduction to the fundamentals of computer-aided drafting and design (CADD).

CET 2200

Introduction to Structures
Prerequisite: PHYS 1111K (or concurrent enrollment)
4-0-4

An introduction to architectural structures with emphasis on statics and strength of materials concepts. Subject matter includes force systems, shear and moment diagrams, determination of section properties, and the design of wood beams and columns. (Not for credit for CET students.)

ENGR 2214

Engineering Mechanics – Statics
Prerequisites: PHYS 2211K (or concurrent enrollment)
3-0-3

Study of force vectors, equilibrium of particles, equilibrium of rigid bodies in two and three dimensions; trusses, friction, centroids and moments of inertia.

CET 2215

Engineering Mechanics – Dynamics
Prerequisite: CET 2214
2-0-2

A study of kinematics and kinetics of particles and rigid bodies. Topics include principles of displacement; velocity and acceleration; relative and absolute motions; force, mass and acceleration; work and energy; and impulse momentum.

CET 2219

Strength of Materials
Prerequisites: CET 2214, MATH 2254
3-3-4

The study and mathematical modeling of the mechanical behavior of materials under load. Emphasis will be on the elastic conditions of equilibrium, compatibility and material behavior. Includes study of stress and strain in columns, connectors, beams, eccentrically-loaded members, as well as introduction to statically indeterminate members.

CET 3301

Soil Mechanics
Prerequisites: CHEM 1211K, CET 2219, CET 3343
3-3-4

Theory of soil mechanics relative to index properties, classification, stress distribution, settlement, permeability, consolidation, shear strength, density, compaction, bearing capacity and lateral earth pressures. Introduction to selection and design of foundations. Laboratory includes obtaining field sampling, evaluation of soil properties, and utilizing test results in design projects.

CET 3302

Construction Materials
Prerequisites: CHEM 1211K, CET 2219
3-3-4

Introduction to materials science and the engineering properties of a variety of civil engineering materials such as metals, wood, aggregates, Portland cement products and concretes, asphalt products and concretes. The relationship between composition, material properties and manufacturing will be examined. Laboratory will emphasize the analysis of data and the application of standard tests to design and construction specifications.

CET 3305

Data Collection and Analysis in Engineering Technology
Prerequisites: MATH 2254, CET 3321
3-3-4

This course combines the elements of proper engineering data collection techniques unique to the field of civil engineering with the numerical analysis techniques needed to properly analyze the data. Using real world examples, students will collect various types of engineering data then analyze the data such that statistically valid conclusions can be achieved. Emphasis will be given to standard engineering practices.

CET 3381

Reinforced Concrete Design I
Prerequisites: CET 3302, CET 3316
2-3-3

ACI design procedures for reinforced concrete beams, columns, footings, slabs and other members. Introduction to masonry design.

CET 3371

Structural Steel Design I
Prerequisites: CET 3316
2-3-3

AISC design procedures for steel beams, joints, girders, columns, base plates, and connections.

CET 3316

Structural Analysis
Prerequisite: CET 2219
4-0-4

Structural loads and types of structures, analysis of determinate and indeterminate structures and deflection of beams, frames, and trusses.

CET 3321

Transportation Systems
Prerequisite: SURV 2221
3-3-4

An overview of transportation engineering as it applies to land, air, and sea systems. Special emphasis is given to the design factors required in planning and constructing a highway including the planning process, traffic analysis and capacity, intersection design and signalization. The lab focuses on the preparation of highway design plans as well as data measurement techniques unique to transportation engineering.

CET 3324

Project Cost Analysis
Prerequisite: CET 3381 or (CET 3371 and CET 3302)
4-0-4

A study of the project cost measurement and analysis techniques unique to the civil engineering profession. Cost analysis procedures and their relationship with cost estimation methodologies are examined. Emphasis is placed on techniques for economy studies of multiple alternatives, uncertainties in forecasts, increment costs, taxes, and retirement and replacement of highways, transportation systems, bridges and publics works facilities. Current economic issues are also discussed.

CET 3343

Fluid Mechanics
Prerequisite: CET 2200 or CET 2214
3-3-4

A study of the basic principles of fluid mechanics and the application of these principles to practical problems. The subject matter will consist of fluid properties, fluid pressure, buoyancy, pipe flow analysis, open channel flow, and pump selection. Pressure pipe systems, flow measurement, and open channel systems are examined.

CET 3344

Fundamentals of Environmental Engineering Technology
Prerequisites: CHEM 1211K, CET 3343
3-3-4

A study of the basic unit operations of Environmental Engineering Technology with emphasis on the design of water and wastewater treatment plants. Aspects of environmental chemistry and standard methods of industrial and municipal wastewater characterization are included.

CET 3901-3904

Special Topics
Prerequisites: Junior standing, consent of the Department Chair.
1 to 4 hours

Special topics offered by the program on a demand basis.

CET 4220

Soils and Concretes in Construction
Prerequisite: CET 2200
3-3-4

A study of the properties and behavior of soil, aggregates and Portland cement concrete as they relate to construction operations. Topics include soil index properties, classification, compaction and drainage; aggregate gradation, durability and applications; design of Portland cement concrete mixtures and testing of concrete in both plastic and cured states, use of concrete admixtures and field concreting practices. (Not for credit for CET students).

CET 4331

Highway Design
Prerequisite: CET 3321
3-3-4

A continuation of the highway design concepts introduced in Transportation Systems. The changing role of the highway designer and the impacts of GIS on the design process will be examined. Design projects will be used to reinforce material studied.

CET 4354

Unit Operations in Environmental Engineering
Prerequisite: CET 3344
3-3-4

Study of the unit operations for advanced water and wastewater treatment. Standard laboratory tests with accompanying reports are included. Topics include membrane processes, carbon absorption, air stripping, nutrient removal and sludge treatment.

CET 4371

Steel Design II
Prerequisite: CET 3371
4-0-4

This is a follow up steel design course with an emphasis on the AISC Load and Resistance Factor Design method. Topics covered are beams (fully plastic, inelastic, elastic), concentric columns, leaner columns, standard connections (bolted and welded), eccentric connections, frame design (braced), modified effective lengths, base plates, and composite beam design (both ASD and LRFD).

CET 4374

Solid Waste Management
Prerequisite: CET 3344
2-3-3

Study of management and equipment alternatives in solid waste generation, collection, processing, transferring, transporting and disposal. Consideration of legislation, regulation and management of solid wastes. Activities include field trips and a municipal solid waste landfill design with both oral and written project reports.

CET 4381

Concrete Design II
Prerequisite: CET 3381
4-0-4

This is a continuation of the concrete design procedures covered in CET 3381. Topics include pre-stress member design, post-tensioned member design, retaining wall design, biaxial bending in short and long concrete columns, and two-way slab design.

CET 4401

Computer Methods in Structures
Prerequisite: CET 3371 (or concurrent enrollment) or CET 3381 (or concurrent enrollment)
3-3-4

Review of matrix algebra, structural analysis by matrix methods (Flexibility and Displacement), Slope-Deflection theory, true stiffness determination of spans with varying moments of inertia, multi-story analysis, global stiffness matrix determination as applied to trusses, beams and frames (2D, 3D). Use of commercially available software for analysis and design such as PC-STRAN, GTSTRUDL or STAAD-III emphasized.

CET 4402

Ethics of Engineering
1-0-1

A review of the theoretical and practical aspects of ethical problems in engineering, along with their suggested solutions. Specific examples, situations and limitations of ethics and ethical relationships are discussed in detail.

CET 4405

Mathematical Modeling in Civil Engineering Technology
Prerequisites: MATH 2254, CET 3343, CET 1002
2-3-3

Applications of mathematical modeling to Civil Engineering systems. Introduction to modeling with applications of conservation laws and other proper organizing principals in engineering. Students will be expected to use basic programming and advanced spreadsheet applications to solve mathematical modeling problems in fluid mechanics, environmental engineering, structural engineering, and basic chemical engineering. The class will focus on applications or appropriate algorithms for solutions.

CET 4411

FE Exam Preparation - Civil Discipline
Prerequisites: Senior Standing or consent of the Department Chair
4-0-4

A review of the civil engineering technology discipline and associated math and sciences in preparation for the Fundamentals of Engineering exam. (Not for credit for CET and Surveying and Mapping majors.)

CET4415

Foundation Design
Prerequisites: CET 3301
3-0-3

Study of the evaluation of alternatives, selection and design of foundations for civil engineering facilities such as buildings, bridges, and other public works. Consideration will be given to behavior of earth materials both during and after construction. Course topics will include subsurface investigation, stress analysis, settlement, bearing capacity, structural design of footings, lateral earth pressures and earth retaining structures, slope stability, and pile foundations.

CET 4418

Geology of Engineering
Prerequisites: CET 3301, CET 3302
2-3-3

Introductory geology, including rock types, geneses, formations, strength, permeability, and weathering. Investigation of the effects of geologic structure, groundwater, rock properties and mineralogy on design and construction of highways, buildings, tunnels and dams. Problems of construction excavation and de-watering, tunneling methods, evaluation of slope stability and determination of geologic substructure through use of maps and subsurface investigations.

CET 4484

Hydraulic Analysis and Design
Prerequisite: CET 3343
4-0-4

Applies principals of fluid mechanics to the design and analysis of hydraulic systems. The course emphasizes open channel flow and addresses topics of interest to the Civil Engineer. Topics include hydraulic grade line calculations, pump design, culvert analysis and design, base flood elevation studies using HEC-RAS, non-uniform flow, gutters and inlets, water distribution, open channel design.

CET 4444

Hydrology
Prerequisite: CET 3343
3-3-4

An introduction to the physical process of the hydrologic cycle, the fundamentals of hydrologic analysis, and the elements of design hydrology. Also includes drainage area studies, hydrograph theory, and storm water and culvert design. Analysis and design of storm sewer appurtenances, flood plain analysis, and open channels. Introduction to site development and the methods presently employed to control erosion and sediment in urban areas. Design of detention ponds, sediment basins and storm sewer systems.

CET 4450

Pavement Design and Maintenance
Prerequisites: CET 3301, CET 3302, CET 3321
3-3-4

A study of the methods used to determine thickness and composition of the components of both flexible and rigid highway pavements. Class work will also include evaluation of paving materials, design of pavement drainage systems recognition of pavement distress, and the design of repair measures. Standard techniques and computer software such as that of PCA, ACPA, the Asphalt Institute and AASHTO will be utilized in pavement thickness design.

CET 4364

Water and Wastewater Treatment Plant Design
Prerequisite: CET 3344
2-3-3

Design of conventional water and wastewater treatment processes, including reactor configurations to maintain specific flow patterns, and transition structures required to maintain desired treatment efficiency.

CET 4471

Transportation Network Design
Prerequisite: CET 3321
3-3-4

A study of the principles and concepts employed in the design of multi-model transportation networks. Topics include: interaction of multi-model systems, terminal design, ports and harbors, airport design, and mass transit. Design projects will look at solutions to network problems facing metropolitan Atlanta.

CET 4480

Senior Project
Prerequisites: Senior standing, consent of the Department Chair
3-3-4

This course is designed to be the culmination of the undergraduate civil engineering technology education. Under the guidance of the professor, students will form small design teams, choose a proposed or ongoing project in the metropolitan area of Atlanta and redesign the project. Working as independent teams with guidance from the lead professor the projects will be completed and the results presented for review to a panel of faculty and students.

CET 4901-4904

Special Topics
Prerequisites: Junior standing, consent of the Department Chair.
1 to 4 hours

Special topics offered by the program on a demand basis.

Computer Science

CS 1002

Introduction to the Computing Disciplines
2-0-2

This course examines the various aspects of computer science in today's world. The students will become familiar with topics such as computer software, hardware, networks, operating systems, web development and data processing. They will also be exposed to what is expected in the field of computer science and types of job opportunities available. Speakers will be brought in for various topics. Institutional credit only.

CS 1301

Computer Science I
Prerequisite: CS 1002 and MATH 1113 or concurrently or permission of the department
3-2-4

This course provides an introduction to computer science with a focus on structured programming. Topics include an overview of programming, problem-solving and algorithm development, simple data types, arithmetic and logical operators, selection and repetition structures, text files, arrays, procedural abstraction and software design, and modular programming including subprograms. Programming assignments focus on the techniques of good programming style and how to design, code, debug, and document programs. The student will be able to solve problems using top-down design and modularize their solutions with proper use of abstraction mechanisms.

CS 1302

Computer Science II
Prerequisite: CS 1301 and CS 1002
3-2-4

This second course in computer science provides a focus on both abstraction and advanced programming techniques of object-oriented programming. Topics include abstract data types, multidimensional arrays and records, recursion, pointers and linked lists, use of parameterized types, software engineering concepts, and introduction to the usage of dynamic data structures (stacks, queues, and trees) to solve application problems. The student will be able to solve problems using objects, including designing and writing their own. Programming assignments emphasize good software development principles such as information hiding, re-use, use of symbolic debuggers, and separate compilation.

CS 2123

C Programming
Prerequisite: MATH 1113 or concurrently
3-0-3

This course covers the beginning concepts of programming logic and algorithms using the C Programming Language. Procedural programming style is used in the labs. (CS and SWE majors may not receive degree credit for this course).

CS 2223

Digital Design
Prerequisite: MATH 2345
3-0-3

A study of the digital devices and circuits used in the implementation of computer systems. Pertinent topics include Boolean algebra and logic concepts, design and minimization of combinational and sequential logic circuits, and modern digital-design software tools such as VHDL.

CS 3123

Programming Language Concepts
Prerequisite: CS 1302 and CS 3223
3-0-3

A comparative study of programming languages covering their history, development, and different design criteria; their formal definitions of syntax and semantics; their concepts and constructs; and the similarities and differences between languages. This course includes examination of object-oriented, functional, and concurrent languages, exception handling, modularization, scoping, etc. The use of programming tools that enable the student to practice the course objectives are incorporated.

CS 3153

Database Systems
Prerequisite: CS 1302
3-0-3

The topics in this course span from a review of the traditional file processing systems to database management systems. Topics include files systems and file processing logic, planning, and major phases of database development: analysis, design and implementation. Labs use an SQL based database product such as Oracle.

CS 3223

Computer Architecture
Prerequisite: CS 2223 and CS 1301
3-0-3

A study of instruction set architectures; basic processor components such as control units, ALU's, and registers; memory; input/output; and performance enhancement using caches and pipelines. Design of the major processor components is discussed in terms of the concepts presented in CS 2223. Some coverage of assembly language programming is included.

CS 3243

Operating Systems
Prerequisite: CS 3223 and CS 3424
3-0-3

An introduction to basic operating system principles. Process management, memory management (real and virtual), peripheral device management, file systems, and distributed systems are introduced and examined from a conceptual viewpoint. Selected aspects of operating systems are explored in greater depth via software simulation projects.

CS 3424

Data Structures
Prerequisite: CS 1302 and MATH 2345
3-2-4

Common data structures and algorithms for their processing are covered. Elementary analysis of algorithms is included. Data structures include stacks, queues (including priority queues), binary search trees, advanced trees, graphs and their representations (including depth- and breadth-first traversals), and hash tables (including collision-avoidance strategies). Additional topics include searching and sorting. All data structures are presented using object-oriented implementations, including inheritance.

CS 3663

Applications Programming in Java
Prerequisite: CS 3243
3-0-3

The computer programming language Java is presented with emphasis on its use for developing graphical user interfaces and client/server applications. Laboratory projects are required.

CS 3683

Applications Programming in Ada
Prerequisite: CS 3243
3-0-3

The computer programming language ADA is presented with a focus on its use in applications that involve multi-tasking and as a vehicle for applying a software engineering approach to software development. Laboratory projects are required.

CS 3901-3904

Special Topics
Prerequisite: Junior standing
1 to 4 hours

Special topics selected by the department. Offered on a demand basis.

CS 4134

Programming PDA's
Prerequisite: CS 3243
4-0-4

This course offers a first-hand programming experience with Personal Digital Assistants. The course addresses issues particular to small, portable devices, such as their GUI, storage and synchronization. It also explores the wireless environment where these devices would interact.

CS 4243

Systems Programming
Prerequisite: CS 3243
3-0-3

This course covers command line, shell, scripting and system tools like AWK and PERL. It also covers Unix file I/O and process control, as well as the use and construction of user interfaces.

CS 4253

Distributed Computing
Prerequisite: CS 3243
3-0-3

A course that introduces students to the fundamental principles common to the design and implementation of programs that run on two or more interconnected computer systems. The subtopics,

which are based on these principles, include: distributed operating system and network protocols for process communication, synchronization, scheduling, and exception and deadlock resolution; understanding of client-server, web-based collaborative systems; parallel computing; concurrency issues; and API's for distributed application development. Several distributed computing environments, like MPI, PVM, and Java RMI are discussed and used in developing experimental projects in a cluster of networked computers.

CS 4263

Computer Networks
Prerequisite: CS 3243
3-0-3

This course broadly covers networking technology from the bottom up. It begins with physical media (copper wire, optical fiber, radio), moves to electrical signaling (carriers, modulation), digital encoding, error detection, data framing and media access strategies. Physical and data link layer devices are studied along with popular topologies. Most popular data-link protocols are reviewed. The course includes an introduction to TCP/IP protocols.

CS 4284

Real-Time Systems
Prerequisite: CS 3243
4-0-4

This course covers the software-development life cycle as it applies to real-time systems. Labs involve the use of a real-time operating system and an associated development environment. System performance issues are also discussed. Major project included.

CS 4354

Computer Graphics and Multimedia
Prerequisite: CS 3424
4-0-4

The basic principles and practices of interactive computer graphics and multimedia systems are covered in this introductory course. The design and implementation of state-of-the-art computer graphic rendering and visual multimedia systems are the main part of the course. The sub-topics of the course deal with specific input/output hardware devices and their technology, software and hardware standards, programming methods for implementing 3-dimensional graphical applications and interactive multimedia applications, and a study and evaluation of the effectiveness of graphic/multimedia communications. A large component of the class is the building of a large-scale application.

CS 4413

Algorithm Analysis
Prerequisite: CS 3424
3-0-3

Advanced algorithm analysis including the introduction of formal techniques and the underlying mathematical theory. Topics include asymptotic analysis of upper and average complexity bounds using big-O, little-o, and theta notation. Fundamental algorithmic strategies (brute-force, greedy, divide-and-conquer, backtracking, branch-and-bound, pattern matching, and numerical approximations) are covered. Also included are standard graph and tree algorithms. Additional topics include standard complexity classes, time and space tradeoffs in algorithms, using recurrence relations to analyze recursive algorithms, non-computable functions, the halting problem, and the implications of non-computability. Algorithmic animation is used to reinforce theoretical results. Upon completion of the course, students should be able to explain the mathematical concepts used in describing the complexity of an algorithm, and select and apply algorithms appropriate to a particular situation.

CS 4423

Logical Foundations of Computer Science
Prerequisite: CS 3424, MATH 2343 and senior standing
3-0-3

An elective course surveying computability theory, finite state machines, automata, parsing, grammars, and selected aspects of compiler construction. Particularly useful for students contemplating attending graduate school in computer science.

CS 4523

Artificial Intelligence
Prerequisite: CS 3424
3-0-3

A survey of Artificial Intelligence principles and applications, along with in-depth coverage of search techniques. Some emphasis on knowledge representation and problem-solving strategies is included.

CS 4533

Digital Image Processing
Prerequisite: MATH 2345 and CS 3424
3-0-3

Application of digital image processing. Topics include image enhancement and restoration, image transforms, geometrical image modifications, edge detection, image segmentation and classification, image coding, feature extraction, morphological image processing, and parallel image processing

CS 4543

Neural Computation
Prerequisite: MATH 2345 and CS 3424
3-0-3

Application of brain-style computing models. Topics include fundamentals of artificial neural networks, pattern classification, perceptrons, back-propagation, counter-propagation networks, Hopfield nets, bi-directional associative memories, competitive learning algorithms, and adaptive resonance theory.

CS 4554

Expert Systems
Prerequisite: SWE 4624
4-0-4

An introduction to the development of expert systems, with emphasis on the roles of domain knowledge, knowledge acquisition, expert knowledge representation, and implementation. A major project is required.

CS 4894

Computer Science Capstone
Prerequisite: CS 3243SWE 4624, TCOM 2010 and SPCH 2400
4-0-4

Team projects in software design, construction, and implementation for a complex real-world application project. The capstone project offers the opportunity to integrate the knowledge acquired in preceding courses. Components that are emphasized include analysis and design, effective documentation, team management, verification and validation of implementation, and communication skills. Additional material and topics related to current projects may also be included. Final projects will be evaluated by faculty and/or Industrial Advisory Board members. Students will be expected to present their final projects on one day that may be different from a scheduled class day.

CS 4901-4904

Special Topics
Prerequisite: Senior standing
1 to 4 hours

Special topics selected by the department. Offered on a demand basis.

Computer Science Graduate

CS 5123

Advanced Programming and Data Structures
Prerequisite: CS 1301 or equivalent course
3-0-3

Transition course for graduate students with a limited background in programming. Topics include pointers, recursion, data structures such as lists, stacks, queues, trees, etc., sorting and searching, data abstraction, introduction to runtime analysis and the big-oh notation. Appropriate programming projects are also included.

CS 5153

Database Systems
Prerequisite: CS 5123 or CS 1302 or IT 5113
3-0-3

Transition course. This course provides an overview of various database models including relational, object-oriented, hierarchical, and network. Also covered are various file structures including sequential, indexed sequential, and direct. It covers planning, analysis, design, and implementation of a database. Entity Relationship models and normalization are covered. It covers an SQL-based database system such as Oracle. A major project and/or paper required.

CS 5183

Object-Oriented Programming
Prerequisite: CS 5123 or CS 3424
3-0-3

Transition course. Topics to be covered include encapsulation and abstraction, objects and classes, inheritance, polymorphism, class libraries, and messaging. The course includes major project(s) and/or paper(s).

CS 5223

Computer Architecture
Prerequisite: CS 1301 or equivalent course
3-0-3

Transition Course: Topics from the principles of computer organization and architecture include number systems, digital logic, basic logic design in combinational and sequential circuits, and assembly and machine language.

CS 5243

Operating Systems
Prerequisites: CS 5123/3424 and CS 5223/3223
3-0-3

Transition Course: Topics from the principles of operating systems include management of resources including processes, real and virtual memory, jobs, processes, peripherals, network, and files.

CS 5423

Mathematical Structures for Computer Science
Prerequisites: An undergraduate course in Calculus
3-0-3

Transition course. Topics from discrete mathematics include set theory, relations and functions, principles of counting, introductory graph theory, formal logic, recursion, and finite state machines.

CS 6023

Research Methods and Presentations
3-0-3

Materials and methods of scholarly research in computer science. Includes study of standard research paradigms with illustrative cases of each and the use of research methods and presentations in industrial and business settings.

CS 6103

Discrete -Time Signals and Systems
Prerequisite: CS 5423
3-0-3

Underlying principles of discrete-time signals and digital signal processing. Topics include mathematical representation of discrete-time signals and systems, sampling theorem and aliasing, introduction to difference equations, IIR and FIR filters, DTF, FFT, and Z-Transforms.

CS 6123

Theory and Implementation of Programming Languages
Prerequisites: CS 5123/3424 and CS 5423
3-0-3

Comparative study of programming language paradigms with emphasis on design and implementation issues. Covers formal definitions of syntax and semantics, data types, static and dynamic storage allocation, definition of operations, control of program flow, subroutine and function linkages, formal tools for characterizing program execution, and abstraction techniques.

CS 6153

Advanced Database Systems
Prerequisite: CS 5153/3153 and CS 5423
3-0-3

An advanced course in database systems emphasizing design issues and implementation tradeoffs. It covers the theory, algorithms, and methods that underlie distributed databases. Relational algebra is discussed. The client-server architecture and application development are also covered.

CS 6163

Information Retrieval and Search Engines
Prerequisites: CS 5123 and CS 5423
3-0-3

The course covers efficient storage and effective retrieval of large amounts of unstructured text information, including an overview of conventional IR techniques and newer perspectives.

CS 6223

Advanced Computer System Architecture
Prerequisites: CS 5243/3243
3-0-3

Topics include computer performance issues, instruction set architectures, RISC versus CISC, machine language, microprocessor design and implementation, performance enhancing techniques, cache memory design, and implications to operating system design.

CS 6243

Advanced Concepts in Operating Systems
Prerequisite: CS 5243/3243
3-0-3

Topics from the theory of operating systems include: memory and process management of high-performance architectures that address concurrent, parallel, and distributed processing.

CS 6263

Computer Networks
Prerequisite: CS 5243/3243
3-0-3

Issues involved in computer communications are examined, based on the layered ISO/OSI Reference Model and the TCP/IP Protocol suite. A bottom-up approach is taken with particular emphasis placed on the physical, data link, and network layers. Topics include WANs, LANs, ADSL, and wireless communication systems. Laboratory projects involve simulation of various aspects of computer Communication.

CS 6283

Real-Time Systems
Prerequisite: CS 5243/3243
3-0-3

The software development life cycle as it applies to real-time systems. Labs involve the use of a real-time operating system and an associated development environment. Related topics such as concurrent task synchronization and communication, sharing of resources, schedulability, reliability, fault tolerance, and system performance are discussed. Project included.

CS 6293

Information Security: Implementation and Application
Prerequisites: CS 5123 and CS 5423
3-0-3

This course covers the fundamentals of computing security, access control technology, cryptographic algorithms, implementations, tools and their applications in communications and computing systems security. Topics include public key infrastructure, operating system security, database security, network security, web security, firewalls, security architecture and models, and ethical and legal issues in information security.

CS 6323

Human Factors
3-0-3

The psychological, social, and technological aspects of interaction between humans and computers. Includes usability engineering, cognitive and perceptual issues, human information processing, user-centered design approaches, and development techniques for producing appropriate systems. Major project included.

CS 6353

Computer Graphics and Multimedia
Prerequisites: CS 5123/3424 and CS 5423
3-0-3

A study of the hardware and software of computer graphics and multimedia systems from the programmer's perspective. Includes a survey of display and other media technologies, algorithms and data structures for manipulation of graphical and other media objects, and consideration of user interface design. Major project included.

CS 6413

Theory of Computation
Prerequisites: CS 5423
3-0-3

A study of topics from theoretical computer science that includes automata and languages, computability theory, and complexity theory.

CS 6423

Algorithmic Processes
Prerequisites: CS 5123/3424 and CS 5423
3-0-3

Design and analysis of algorithms. Includes notations for representing algorithms, mathematical techniques for analyzing algorithms for appropriateness, efficiency, completeness, correctness, and decidability.

CS 6453

Simulation and Modeling
Prerequisites: CS 5123/3424, Matrix Algebra, and Probability and Statistics
3-0-3

The application of various modeling techniques to the understanding of computer system performance. Includes analytic modeling, queuing theory, continuous and discrete simulation methods, and the use of some simulation software tool to implement a major project.

CS 6523

Survey of Artificial Intelligence
Prerequisite: CS 5123/3424 and CS 5423
3-0-3

A survey of the major issues in AI. Knowledge representation, reasoning, and learning with AI programming techniques. Current topics are also included.

CS 6563

Digital Image Processing and Analysis
Prerequisites: CS 5123 and CS 5423
3-0-3

Theory and application of digital image processing. Topics include sensing, sampling and quantization, image enhancement and restoration, image transforms, geometrical image modifications, edge detection, image segmentation and classification, image coding, feature extraction, image representation, morphological image processing, and parallel image processing. Applications include satellite images and biomedical images.

CS 6593

Selected Topics in Artificial Intelligence
Prerequisites: As determined by the Instructor and Department Chair
3-0-3

In-depth study of specific AI topics. Possible topics include, but are not limited to, Expert Systems, Neural Networks, Genetic Algorithms, Machine Learning, Fuzzy Logic, etc.

CS 6703

Independent Study
Prerequisites: Approval of course director
3-0-3

Independent study/project under the direction of a graduate CS faculty member.

CS 6901-6903

Special Topics
Prerequisite: As determined by the Instructor and Department Chair
1 to 3 hours

Special topics selected by the Department Chair. Offered on a demand basis. A student may repeat this course with special permission.

CS 7803

Master's Thesis
Prerequisite: Consent of the Department Chair and the Thesis Advisor
3-0-3

The thesis is designed for students wanting a research focus to their degree. The student works independently under the supervision of a designated CS faculty member on a thesis of substance in computer science. The student will generate a formal written thesis and give a final defense of the thesis. This course may be repeated, but only 6 hours may be applied toward the degree.

Construction

CNST 1000

Orientation to Construction and Development
1-2-2

An introduction to construction industry careers; an overview of construction industry sectors and the industry's impact on the economy; and discussion of the basics of the construction process. Also includes a preview of the construction degree curriculum and an overview of Southern Polytechnic policies, procedures, and resources.

CNST 2000

Construction Graphics
2-2-3

A study of the fundamentals of graphic language used by construction professionals, with an emphasis on developing skills in expressing concepts in visual form and in reading architectural and engineering construction documents.

CNST 2901-2904

Special Topics
Prerequisite: Consent of the department head
1 to 4 hours

Special topics in construction. Offered by the department at its discretion.

CNST 3000

Computer Applications in Construction
1-3-2

An introduction to microcomputers and commercial software. Students learn DOS and Windows manipulations, spreadsheets, word processing, visualization, and presentation software by actively using tutorials and help screens in a structured laboratory setting. Scheduling and estimating software are introduced.

CNST 3110

Building Techniques and Methods I
Prerequisite: CNST 2000
3-2-4

A study of materials, techniques, and methods used in residential and light construction. Foundations, wood frame and masonry structural systems, interior and exterior finishes, residential electrical, plumbing, and mechanical systems are included. Also included are residential building code requirements.

CNST 3160

Building Techniques and Methods II
Prerequisite: CNST 2000
2-2-3

A study of the materials, techniques, and methods used in nonresidential construction. Foundations, structural frames, interior and exterior finishes, and specialties are included. Special attention is given to an introductory study of mechanical, electrical and conveying systems used in commercial buildings. Basic design of these systems and their major components is presented including: plumbing, HVAC, electrical power, lighting, alarm systems, elevators and other conveying systems.

CNST 3180

Building Techniques and Methods III
Prerequisite: CNST 2000
3-2-4

Study of building mechanical and electrical systems and how they affect the construction organization and construction project. Topic will include air conditioning, heating, plumbing, fire protection, electrical power, electrical lighting and building control systems. The analysis of current construction drawing will be integrated into each topic.

CNST 3210

Applied Structures I
Prerequisite: CET 2200
4-0-4

A study of structural design analysis and design concepts used in steel and concrete construction. Topics include selection of structural systems and the design of columns, beams, and other structural components.

CNST 3260

Applied Structures II
Prerequisite: CET 2200
2-2-3

A study of structural design and analysis concepts of temporary structures used in the construction process. Topics include formwork design, scaffolding, and material handling equipment and staging.

CNST 3280

Codes and Loads
4-0-4

Study of building mechanical and electrical system loads and applicable codes. Emphasis on how they affect the construction project. Topics will include air conditioning, heating, plumbing, fire protection, electrical power, electrical lighting and building control systems. The analysis of current construction drawings will be integrated into each topic.

CNST 3310

Development Planning
Prerequisite: CNST 1000
3-0-3

An overview of development and planning including introduction to real property development principles and processes. The roles of professionals involved in the process will be investigated. The relationship of land development to urban planning, community organization, housing, and economic development will be explored.

CNST 3410

Construction Estimating I
Prerequisites: CNST 3000, CNST 3160
2-2-3

A study of techniques in the process of construction estimating, with an emphasis on development of the quantity survey. The completion of a specification takeoff and a quantity survey of commercial construction are required.

CNST 3411

Construction Estimating Software
Prerequisite: CNST 3410
1-2-2

Hands-on computer application of commonly used commercial construction estimating software to construction projects. Instruction in use of the software.

CNST 3420

Construction Estimating II
Prerequisite: CNST 3410
3-2-4

The continued study of the estimating process emphasizing pricing the general contractor's work, including estimating procedures, development of direct and indirect unit costs, evaluation of subcontractor bids, bidding strategy and bid opening. The completion of an estimate, bid submission, and development of a schedule of values are required. Also included is an introduction to conceptual estimating.

CNST 3430

Construction Estimating III
Prerequisite: CNST 3410
2-2-3

A study of quantity take-off techniques and equipment productivity analysis necessary to development. Small scale development project budgeting w ill be analyzed from the developer viewpoint. Initial conceptual design budget is based on square foot or assembly pricing for the various construction systems and detailed estimate for the infrastructure costs including site work and utilities. Indirect costs associated with zoning, local codes, and ordinances, as well as soft cost associated with design and engineering will be discussed.

CNST 3480

Construction Estimating IV
Prerequisite: CNST 3410
3-2-4

A continuation of the study of the estimating process emphasizing the specialty contractors portion of the construction project. Topics covered will include the estimating procedure, soft costs, using standard industry references and software, and bidding strategy. A current set of mechanical, plumbing and electrical plans will be estimated.

CNST 3500

Building Codes
2-0-2

This course will provide an overview of building codes from the perspective of construction managers and superintendent. Various issues related to building codes, which must be considered by the PM/CM/superintendent, will be discussed and follow the scheduled reading assignments.

CNST 3620

Construction Finance and Feasibility
Prerequisite: ACCT 2101
4-0-4

A study of Financial Management for the Contractor, and Builder/Developer Organization. Topics include: balance sheet analysis using Percentage of Completion Method, Completed Contract Method with Absorption Analyses, and Work in Process Accounting regarding construction progress payments in excess of costs and estimated earnings. Ratio analysis for construction industry and bid and payment/bond performance. Cash flow projection for construction projects. Also included is building construction economics in terms of: Value Engineering, Constructability, building delivery systems and real estate processes for the Builder/Developer and Construction Management organizations. Graduate students will do additional work on construction cost accounting.

CNST 3710

Site Planning
Prerequisite: CNST 2000
3-2-4

An integrated theory and applications course which provides an exposition of theoretical principles associated with the site planning process, and then involves the students in hands-on application exercises. The inter-relationship between site planning decisions and their potential consequences will be demonstrated through practical exercises.

CNST 3800

Construction Seminar
2-0-2

Business and management topics pertinent to the construction industry. The course consists of a series of seminar presentations by prominent industry representatives.

CNST 3810

Construction Proposals
2-0-2

Elements in the pre-construction project proposal. Emphasis is placed on content and presentation of construction proposals. Included are techniques and methods for effective analysis of client need; and the selection and presentation of pertinent information on cost, quality and expertise.

CNST 3912

Workplace Law
3-0-3

A study of the legal constraints encountered in the workplace. Topics included are drugs and drug testing, sexual harassment, labor management cooperation, discrimination, worker compensation, foreign labor regulation, minority/women's business enterprises and professional regulation.

CNST 3901-3904

Special Topics
Prerequisite: Consent of the department head
1 to 4 hours

Special topics in construction. Offered by the department at its discretion.

CNST 4510

Scheduling
Prerequisite: CNST 3000
2-2-3

A study of the management techniques used in controlling the time and cost of construction projects, including development of schedules and budgets, organization and presentation of project information, and updating and monitoring progress using critical path methodology. Development of a construction schedule and budget is required. Commonly used commercial software packages are introduced.

CNST 4511

Construction Scheduling Software
Prerequisite: CNS T 4510 or approval of the department head
1-2-2

Hands-on computer application of commonly used commercial construction scheduling software to construction projects. Instruction in use of the software.

CNST 4560

Construction Project Management
Prerequisite: CNST 3160
3-0-3

A study of the management of field operations and administration of the construction contract. Contract documents, project organization, supervision, working with owners and design professionals, control of cash flow, procurement, management of subcontractors, job records, contract changes and payment procedures are discussed.

CNST 4570

Development Process I
4-0-4

This course is intended to provide the student with an understanding of the market forces that shape real estate development. The course will provide a familiarity of the principles and procedures employed in determining the feasibility of improvement of real property and with an elementary knowledge of the project appraisal process. Different tools and analysis techniques used in development feasibility are the main focus of this course.

CNST 4580

Specialty Construction Project Management
Prerequisite: CNST 4560
3-0-3

Principles of construction project management as applied to building mechanical and electrical systems. Emphasis will be placed on how specialty project management influences and integrates with the overall construction project. Techniques for managing the construction of air conditioning, heating, plumbing, fire protection, electrical power, electrical lighting and building control systems are discussed. How project management techniques are applied to current construction drawings is included.

CNST 4620

Development Process II
Prerequisites: ACCT 2101, CNST 4570
4-0-4

A continuation of CNST 4570 including application exercises in the eight stages of project development that assist the developer/builder in the creation of the built environment. This course will include a study of the market forces affecting development planning including development demand, demographics, and location theories; and discussion of how the developer delivers the product to the consumer.

CNST 4680

Energy Conservation
Prerequisite: CNST 3180
4-0-4

Construction techniques and systems that can be used to reduce energy consumption. Topics will include building materials, thermal load reduction, electrical load reduction, thermal storage, off-peak consumption, co-generation, utility rate structure, and the influence of building energy consumption on air and water quality. Mechanical, electrical and plumbing systems and components will be analyzed for coefficient of performance, refrigeration effect and useful life. ROI analysis of components and systems will be included.

CNST 4710

Construction Safety
4-0-4

A study of construction safety and loss control principles and practices. Topics include project security control, construction accident prevention, safety information sources, weather precautions, emergency planning, and OSHA procedures and regulations.

CNST 4760

Construction Law
Prerequisite: CNST 4560
3-0-3

A study of Construction Contract Documents and Claims. Topics include: analyses of AIA B141, A101, A201, and contractual graphic and technical documents. Other supporting construction contract documents such as bid bonds, payment and performance bond and construction modifications are studied. The traditional tri-union construction contract formation process is examined in relation to the owner, contractor, material, men, and subcontractors. Discussions regarding damages for differing and unforeseen conditions, defective workmanship, and construction delay claims are surveyed in conjunction with AAA construction arbitration rules regarding emerging construction manager contracting processes.

CNST 4770

Development Law
Prerequisite: CNST 4570
3-0-3

An examination of real property law, elements of land ownership, title of land in Georgia, eminent domain questions, estates and interest in land, zoning and easements, tenant landlord law, real property contracts, deeds, covenants, title examination and closing transactions, and environmental regulations.

CNST 4800

Construction Process Simulation
Prerequisites: CNST 4510, 3410, and 3420 or 3480
1-4-3

Simulations and case studies of events that affect the construction organization and project. Topics and event simulations will include problems typically encountered in the construction industry such as changed conditions, strikes, inconsistencies in documents, and surety assumption of the contract. Presentations by prominent industry representatives pertinent to the event being simulated.

CNST 4900

Capstone Project
Prerequisites: CNST 3620, CNST 4560, CNST 4710, CNST 4800, and an approved graduation petition
1-6-3

This project course is the application of course materials covered in the four-year curriculum to an actual construction project with a simulated business construct. Project includes developing a company organization, preparing a bid on a construction project approved by course professor, executing all documents necessary to create the company, implement the project management plan, and complete the construction contract.

Construction Graduate

CNST 5030

Descriptive Structural Systems
4-0-4

A descriptive study of structural behavior with an overview of statics, strength of materials, design of beams and columns for concrete, steel and timber structural systems.

CNST 6000

Information Methods
4-0-4

A course in communications technique improvement and preparation for functioning in an information based society. Conceptual and methodological issues in construction research will be explored with emphasis on construction specific resources. Data development and analysis will be studied to include the concepts of validity, reliability, and applications of statistics.

CNST 6100

Construction Law: Contracts and Claims
4-0-4

This course focuses on the legal problems and concerns frequently encountered by constructors and others who participate in the construction process. Topics include the formation of contracts and the various contractual relationships; methods of modification and termination of the contracts; exploration of licensure and professional liability of the construction practitioner.

CNST 6110

Commercial Construction Transactions
Prerequisite: CNST 6100
4-0-4

This course is an extension of CNST 6100, with course topic discussion being devoted to commercial construction transactions in relation to the construction contracting process. Discussion is devoted to UCC Article 2, 3, and 9 as applicable to construction vendor contracts. Also, discussion is devoted to the hybrid contracting process and the legal implications of bidding for goods and services that qualify under commercial contract law.

CNST 6120

Dispute Resolution
Prerequisite: CNS T 6100
4-0-4

This course will survey the growth of the alternate dispute resolution field, giving emphasis to alternative dispute resolution theory and its application to the construction industry. A student will be exposed to different resolution processes relative to the construction industry: namely, negotiations, meditation and arbitration.

CNST 6130

Case Studies in Construction
Prerequisite: CNST 6100
4-0-4

This course is designed to explore the multiple contractual complications that typically arise within the construction contracting process. Topics will develop and explore the technical aspects of procurement, implementation, construction operations, through to post contractual obligation and liabilities inherent in the construction industry.

CNST 6200

Strategic Bidding and Estimating
4-0-4

A review of all normal bid-preparation activities that should take place in a prime contractor's organization from the initial decisions on project selection and receipt of drawings and specifications, through the estimating process and sub-bid research, final bid assembly, markup and submission, to postmortems and necessary follow -up actions. Significant attention will be devoted to bidding techniques, strategies, practices, and methods recommended to handle these functions.

CNST 6310

Advanced Scheduling and Integrated Controls
4-0-4

An exploration of current techniques and practices of integrated project control systems for construction. Subjects covered include various methods of project scheduling and monitoring, resource management, time-cost tradeoffs, organizing and managing schedule data, forecasting and trend analysis, and presentation of schedule information. Special emphasis is placed on the use of modern integrated scheduling practices and associated computer tools.

CNST 6320

Construction Information Systems
4-0-4

The interaction of information technology with the construction industry. Opportunities and risks for individuals and organizations are examined in the realms of information flow, decision-making and a changing world. Human and ethical issues are considered. Students are introduced through laboratory exercises to construction specific products, to construction applications of conventional database systems and to data transfer technologies.

CNST 6330

Advanced Operations: Constructability, Value Engineering, Productivity
4-0-4

An exploration of project processes and organization including procurement, startup, documentation, payment, change order administration and job closeout. Included is project analysis for constructability, value engineering, and productivity analysis/improvement techniques.

CNST 6410

Building Failures and Defective Work
4-0-4

A study of problems, trends and issues related to workmanship and product failures during a time of rapid change in the construction industry. It will discuss concepts, philosophy and technology behind the subject issues and seek the exchange of ideas and views. Students will be expected to gain knowledge in the subject topics and develop skill in researching for facts extended to effective written and verbal presentations of the findings.

CNST 6420

Tall Buildings

4-0-4

A study of tall buildings in the society of today and tomorrow. Form giving factors will be identified and problems of planning, design and construction explored. The project manager's role in the tall building process will be related to specific building examples. International differences in the role of tall buildings will become apparent, yet common threads will be found which can be useful in a shrinking world and a more universal construction industry.

CNST 6430

Automation and Robotics
4-0-4

A study of the level of application of automation and robots to construction. Techniques and equipment in varying stages of development as well as current applications will be presented for analysis and discussion. Students will be challenged to conceptualize new ways of applying technology to improve industry productivity through automation and robotics.

CNST 6510

Marketing of Construction Services
4-0-4

An examination of how construction services are marketed in the various sectors of the construction industry. The relevant characteristics of construction organizations and target clients will be explored with various scenarios structured to highlight critical parameters of search and match. The potential contributions of the media and conventional planning/analysis techniques will be considered.

CNST 6520

International Construction
4-0-4

An introduction to the construction industry in the international arena. Projects and processes will be studied. Issues of contract law, industry regulation, currency exchange, payment guarantees and risk management will be examined and related to respective countries of concern. Operations under different cultural norms will be projected in realistic scenarios.

CNST 6530

Construction Markets
4-0-4

A study of the dominant factors at work in different construction markets. Geographic, technological, economic, political, organizational, and social influences on construction markets are included. Market groupings by type of construction are identified and paradigms of construction are explored.

CNST 6540

The Construction Company
4-0-4

Organization of the construction firm is covered in this course. Financing of the firm, marketing the various construction services of the firm and exploring the economics which are unique to the construction industry are analyzed. Strategic planning and planning for growth of a construction firm are included in the course. Insurance, bonding, employee development, and labor relations are studied. The continuing relationships with clients, bankers, bonding companies and design professionals are explored.

CNST 6600

Construction Risk Analysis and Control
4-0-4

This course focuses on the safety practices mandated by government regulation and required by good business practice. The costs of safety and the lack of it is examined. Workers' compensation insurance cost is integrated into the issues of safety. Exposure analysis, risk management, risk transfer and the costs associated with each are examined in this course.

CNST 6800

Construction Seminar
2-0-2

Business and management topics pertinent to the construction industry. The course consists of a series of seminar presentations by prominent industry representatives.

CNST 6901-6904

Special Topics
Prerequisite: Consent of the department head
1 to 4 hours

Special topics offered by the department. Offered on a demand basis.

CNST 7701-7704

Master's Project
Prerequisites: CNST 6000 and consent of the department head
1 to 4 hours

This course is designed for the students who want to focus their course of study on a particular aspect of construction. The student works independently under the supervision of the course professor on a project or an inquiry that is significant in the construction industry. The topic of the project or inquiry must be approved prior to registration and the student must continue the work in a manner that is satisfactory to the course professor. The student is expected to submit a substantial report and to defend this submittal and the course work taken in the degree program. This course may be repeated with departmental approval but no more than 8 hours may be applied toward the requirements for graduation.

CNST 7801-7804

Master's Thesis
Prerequisites: CNST 6000, completion of 28 hours of graduate
1 to 4 hours

Construction degree course work or consent of the department head, approval of thesis proposal Intensive research project that results in a formal written thesis. The thesis topic will usually be in an area of interest discovered by the student in early stages of the Construction program or work experience. Students may enroll for a maximum of 4 hours per term for thesis credit. The student works independently under the supervision of the thesis advisor on an inquiry that is significant to the construction industry. The topic must be approved before registration and the student must continue the work in a manner that is satisfactory to the thesis advisor. The student is expected to submit a substantial body of research work and to defend this submittal and the course work taken in the degree program. This course may be repeated with departmental approval but no more than 8 hours may be applied toward the requirements of graduation.

Design Foundation

DFN 1000

School of Architecture Orientation
2-0-2

This course provides entry students with the educational requirements and the licensing procedures for design professionals. Development of the built environment, the study of professional architectural practice and associated disciplines are also introduced.

DFN 1001

Design Foundation I
0-12-4

DFN 1001 is the first design studio. Through exercises and projects, it introduces a variety of skills and subjects for the beginning student in architecture including but not limited to the following: drawings, model building, verbal communication, design, and building language.

DFN 1002

Design Foundation II
Prerequisites: DFN 1000, DFN 1001
0-12-4

DFN 1002 builds and elaborates upon the skills and subjects Introduced in DFN 1001. It culminates with a capstone design project that summarizes and measures the learning of the first year, and prepares students for the second year.

DFN 2003

Design Foundation III
Prerequisite: DFN 1002
1-9-4

This course concentrates on shaping, organizing, and designing architectural space using spatial and compositional strategies derived from precedent and architectural case studies.

DFN 2004

Design Foundation IV
Prerequisite: DFN 2003
0-9-3

The culmination of the Design Foundation incorporates and builds upon all previous course work. It adds the fundamental concept of typology to previous experiences with architectural space, composition, and program. Students investigate layers of functional zoning, geometric organization, three dimensional configuration, openings, physical texture, color, character, and symbolic meaning.

DFN 2111

Architecture Culture I: Prehistory through Gothic with an Introduction to Non-Western Traditions
3-0-3

The history of architecture is presented as a collection of buildings, each of which is seen as a concrete solution to a given set of culturally derived problems and issues. These buildings, as precedents, are not to be analyzed based on composition or aesthetic image, but rather as design solutions to complex socio-cultural problems. History is used as a didactic device to aid the design student in problem solving by presenting examples of how architects have successfully transformed the intellectual concerns of their day into built form.

DFN 2211

Introduction to Structures
Prerequisite: MATH 2253
3-0-3

This course is an introduction to architectural structures with an emphasis on statics and strength of materials concepts. Focus is on force systems, shear and moment diagrams and determination of section properties.

DFN 3241

Computer Applications in Architecture
Prerequisite: DFN 2003
1-3-2

This course presents basic training in the operation of the hardware and software of computer-aided design (CAD) with an introduction to two and three-dimensional graphic techniques and their application to professional practice.

Economics

ECON 1101

Introduction to Economics
Prerequisite: MATH 1111
3-0-3

An analysis of the economics of production in American society. Particular emphasis is given to the study of fiscal and monetary policies, and to the study of the impact of government upon the functioning of these industries. Topics include marginal productivity analysis, graphic models, national income analysis, and the importance of the labor market in American industry.

ECON 2105

Macro Economics
Prerequisite: MATH 1111
3-0-3

An analysis of the economics of production in American society. Particular emphasis is given to the study of fiscal and monetary policies, and to the study of the impact of government upon the functioning of these industries . Topics include marginal productivity analysis, graphic models, national income analysis, and the importance of the labor market in American industry.

ECON 2106

Micro Economics
Prerequisite: MATH 1111
3-0-3

This course deals principally with economic theory of consumer behavior and business decision-making. Concepts which will be studied include competitive environment; consumer equilibrium point; supply and demand curves; production and cost functions; determinations of optimum quantity; price, profit, cost and other relevant decision variables.

Electrical and Computer Engineering Tech

ECET 1000

Orientation
2-0-2

This course will provide an introduction to Electrical and Computer Engineering Technology and to SPSU, to include: an introduction to the ECET faculty, an overview of career opportunities, available campus facilities, student organizations, etc. Some of the skills necessary to students will also be introduced. These include: writing formal lab reports and learning basic computer skills.

ECET 1011

Fundamentals
Prerequisites: ECET 1000 or concurrently, MATH 1113 or concurrently
2-3-3

A study of several skills necessary in ECET. This is to include: lab orientation with simple circuits, critical thinking concepts, an introduction to C++ programming and other computer skills.

ECET 1100

Circuits I
Prerequisites: ECET 1010, ENGL 1101, MATH 2253 or concurrently
3-3-4

This course introduces basic electrical quantities. Techniques for analyzing resistive networks are heavily emphasized. In addition, the physical mechanisms underlying capacitance and inductance are examined along with analysis of transient responses in circuits containing resistors and capacitors or resistors and inductors. The course concludes with a treatment of dependent sources and 2- port parameters. Laboratory exercises reinforce theoretical concepts presented in the class and provide various opportunities to become familiar with standard instrumentation in electrical engineering technology.

ECET 1200

Digital I
Prerequisite: ECET 1100 or concurrently
3-3-4

A study of digital circuit fundamentals with an emphasis on combinational and sequential logic design, logic simplification and implementation using standard digital IC's and programmable logic devices. Topics include: binary number systems, binary arithmetic, logic families, design techniques, logic simulation, F/F's, counters, registers, memory technologies and PLD's.

ECET 2110

Circuits II

Prerequisites: ECET 1100 , MATH 2254 or concurrently, PHYS 1111K or concurrently
3-3-4

This course primarily extends the circuit analysis techniques learned in ECET 1100 to circuits containing all three types of passive circuit elements and sinusoidal sources. Several adjunct topics are then presented including transformers and 3-phase circuit analysis, resonance, pulse response of RLC circuits, and an introduction to Fourier series and non-sinusoidal waveforms. Laboratory exercises reinforce theoretical concepts presented in the class and provide various opportunities to become proficient in working with standard instrumentation in electrical engineering technology.

ECET 2210

Digital II

Prerequisites: ECET 1200, ECET 2300
3-3-4

The study of digital design principles with emphasis on the use of LSI, MSI, and SSI circuits in the application and design of complex digital systems. Principles covered include: the study of an industry standard micro-controller, assembly language programming, logic family characteristics, system interfacing and system timing issues.

ECET 2300

Electronics I

Prerequisites: ECET 2110 or concurrently, MATH 2254 or concurrently, PHYS 1111K or concurrently
3-3-4

A study of the characteristics, analysis, and practical applications of diodes, BJTs, and FETs. Semiconductor theory, biasing, stability and small-signal models of BJTs and FETs are included. The course covers an introduction to the characteristics of the ideal opamp including some basic op-amp circuits. Laboratory exercises include proto-boarding, designing and analyzing selected circuits.

ECET 2310

Electronics II

Prerequisites: ECET 2110, ECET 2300
3-3-4

A study of BJT and FET amplifiers including: amplifier frequency response, multistage amps, differential amps, feedback principles and heat sink principles. The characteristics, performance and practical applications of modern linear integrated circuits including: operational amplifiers, comparators, multipliers, logarithmic amplifiers and oscillators are also covered. Laboratory exercises include proto-boarding, designing and analyzing selected practical circuits. P-Spice simulations and computer-aided testing are utilized in conjunction with some laboratory exercises.

ECET 2800

Introduction to Telecommunications
Prerequisite: ECET 2110
3-0-3

A study investigating the fundamentals of the telecommunications industry regulations, standards (international & national), state-of-the- art telecommunications systems and management issues as well as other topics will be explored.

ECET 3000

Electrical Principles
Prerequisite: PHYS 1112K
3-3-4

Covers basic circuit theory including the ac and dc characteristics of resistors, capacitors and inductors as used in elementary single and three-phase circuits. Characteristics of basic industrial electric motors and single and three-phase connections are studied. Basic factory automation is covered including sensors, relay control and programmable logic controllers. Laboratory exercises supplement the material discussed in class. This course cannot be used for credit by CpET or EET majors.

ECET 3220

Digital III
Prerequisite: ECET 2210
3-3-4

The student will design a single board computer (SBC) incorporating standard components such as RAM, ROM, address decode, and input/output devices such as keyboards and LCD displays. A complete software monitor system will be developed for the SBC utilizing industry standard development tools. One of the major objectives of this class is to provide an environment within which the student can experience a complete industry-like project development cycle. This cycle will include the design, development, construction and test of the project. Advance I/O topics will also be covered including ADC and DAC operation and interfacing.

ECET 3400

Data Communications
Prerequisites: ECET 2310, PHYS 1112K
3-3-4

This course is a survey of guided data communications topics. The course includes line codes, EIA232, modems, signaling, digital and analog modulation techniques, compression algorithms, and trellis coding. Transmission media and error detection and correction are also covered. The OSI model is covered, with the lower layers studied heavily. Synchronous and asynchronous link control, character and bit - oriented link protocols are evaluated. Other areas studied include analog-to-digital conversion, multiplexing, switched network algorithms, LANs, WANs, and MANs. Networking protocols such as TCP/IP, Frame Relay, Token Ring, ATM, and Ethernet are introduced.

ECET 3410

High Frequency Systems
Prerequisites: ECET 2310, PHYS 1112K
3-3-4

A study of electronic transmission systems. The course includes the detailed study of rf transmission lines with a concentration on their fundamental principles, specifications, operation and practical applications. The course also includes the study of the fundamental principles of wireless and fiber-optic communications. Electromagnetic interference and electrostatic discharge, standards and regulations, and an introduction to the concepts of distributed networks is also introduced.

ECET 3500

Survey of Electric Machines
Prerequisite: ECET 2110
3-3-4

This introductory course in the characteristics and applications of basic electric machinery will begin with a review of magnetic circuits and transformers. Single-phase, three-phase, autotransformers, instrument transformers and buck-boost transformers will be covered. Three-phase and single-phase induction motors, synchronous motors and synchronous generator, dc motors and dc generators will also be included. The laboratory exercises will involve operating and testing transformers and machines to determine their operating characteristics. Among these characteristics will be the efficiency and voltage regulation as determined by direct and indirect methods.

ECET 3600

Test Engineering
Prerequisites: ECET 2210, ECET 2310
3-3-4

An introduction to test engineering principles with emphasis on computer-controlled instrumentation and data acquisition using industry standard bus structures such as the IEEE-488 bus and related protocol, D/A, A/D, and parallel I/O interfaces. Application software will be written in Visual Basic for testing a particular unit and interfacing various GPIB instruments. Visual Basic will be used as the overall project management software for the Unit Under Test. Design for testability and related topics will also be covered. Laboratory projects will emphasize automated testing using the principles covered in class.

ECET 3620

Signals and Systems Analysis
Prerequisites : ECET 2310, MATH 2306
3-3-4

Analysis of continuous -time signals occurring in circuits and systems containing linear and nonlinear elements. Analysis methods include graphical techniques, Laplace transform, Fourier analysis, convolution, and difference equations. Fundamental topics regarding AM and FM communication systems, Bode plots for transfer functions of arbitrary complexity, classical filter responses, and practical second-order filter designs are also presented. An introduction to discrete-time systems including sampling theory is also covered. MathCad and PSpice are utilized in conjunction with some of the computational laboratory exercises.

ECET 3640

Introduction to Systems Engineering and Robotics
Prerequisite: ECET 2310
3-3-4

This course will introduce students to the general principles of Systems Engineering through the development of an actual robotic systems. When completed, each student will understand the basic elements of system engineering design including requirements analysis, functional decomposition, subsystem decomposition, risk analysis, physical and logical interface specification, physical modeling, simulation, and life cycle planning.

ECET 3701

Embedded PC's
Prerequisite: ECET 2210, ECET 3810
3-3-4

Introduction to the programming and interfacing of embedded PC's, with emphasis on systems using single-board, x86-based, computers. Programming will introduce both assembly and C languages. Interfacing will emphasize the use of the serial, parallel and USB ports. Operating systems will emphasize Linux and DOS. The PC BIOS and peripherals such as disk drives and video interfaces will also be studied.

ECET 3810

Applications of C++, JAVA and HTML
Prerequisite: ECET 1010
2-3-3

A study in the applications of several key programming environments. This course covers such topics as: data types, structures, functions, arrays, file I.O., system calls, data portability, security and Internet related topics as they pertain to the appropriate programming language.

ECET 3901-3904

Special Topics
Prerequisite: Junior standing
1 to 4 hours

Special topics selected by the department. Offered on a demand basis.

ECET 4320

Active Filters
Prerequisite: ECET 2310
3-3-4

A study of the characteristics, analysis, and practical topologies of active filters. The state-variable and Sallen-Key topologies are emphasized. Various filter responses are studied including Butterworth, Chebyshev, Bessel, and Cauer (elliptic). Delay, sensitivity, frequency scaling, impedance scaling, determination of pole-zero locations, and transformations of transfer functions are covered. Filter synthesis by equating coefficients of applicable transfer functions is included. The design of filters using normalized tables is presented. An introduction to switched-capacitor and digital filters is also included. Laboratory investigations include proto-boarding, designing and analyzing selected practical active filters. P-Spice, Math-Cad, and computer-aided testing are utilized in conjunction with the laboratory exercises.

ECET 4330

Audio Technology
Prerequisites: ECET 2210, ECET 2310
3-3-4

The fundamentals of specifications, standards, devices, circuits and systems used in audio are studied. Acoustics, power amplifiers, preamplifiers, frequency contouring circuits, signal processors, microphones, loudspeakers and sound reinforcement systems are covered. Laboratory investigations include proto-boarding, designing and analyzing selected practical audio circuits. P-Spice simulations and computer-aided testing are utilized in conjunction with several laboratory exercises. One of the lab periods will be utilized for a field trip to a local sound reinforcement facility.

ECET 4420

Communications Circuit Applications

Prerequisites: ECET 2310, PHYS 1112K
3-3-4

A study of radio frequency and optical-wavelength communications circuits and their applications. A variety of basic transmitter and receiver circuits are studied, including amplifiers, tuned oscillators, phase-locked loops, modulators and demodulators. Spectral analysis is introduced and the effects of noise in communications systems are investigated. Laboratory experiences demonstrate circuits and concepts discussed in the classroom.

ECET 4431

Wireless Communications Systems
Prerequisite: ECET 3410
3-3-4

This course investigates point-to-point radio frequency (rf) communications systems. The underlying principles, requirements, and characteristics of electromagnetic propagation and antennas are studied. Existing systems and recent advances in the area of wireless communications will be covered, including terrestrial and satellite applications. Topics covered include FDMA, TDMA, and CDMA based design. The application of wireless design principles to radar will also be discussed. Laboratory experiences and computer simulations supplement the classroom discussions.

ECET 4432

Fiber-optic Communications Systems
Prerequisite: ECET 3410
3-3-4

A detailed study of optical-wavelength communications systems . The underlying principles, requirements, and characteristics of optic sources, detectors, and dielectric wave-guides (fibers) are studied. Heavy emphasis is placed on systems analysis, including power budgets, bandwidth budgets, and signal-to-noise ratios. Recent advances in the area of fiber-optics will be covered, as well as emerging technologies and applications. Laboratory experiences supplement the classroom discussions.

ECET 4450

RF Electronics
Prerequisites: ECET 2310, ECET 3410, PHYS 1112K
3-3-4

A study of practical RF transceiver design and fabrication techniques. Theoretical concepts underlying transmitter and receiver circuits such as oscillators, mixers, filters, amplifiers, transformers and automatic gain control are discussed. Students build and test a 7 MHz superheterodyne Morse code transceiver in the lab.

ECET 4510

Power System Analysis
Prerequisite: ECET 2110
3-3-4

This course involves the analysis of power systems starting with the calculation of line resistance, line inductance, and line capacitance of power transmission lines. These parameters are used to model power systems in order to derive the bus impedance matrix, perform network calculations and analyze systems for symmetrical and unsymmetrical faults. The laboratory will be of a problem solving nature and will involve the solution of network problems with computer software such as Math-Cad.

ECET 4520

Industrial Distribution Systems, Illumination, and the NEC
Prerequisites: ECET 2110, ECET 3500
3-3-4

This introductory design course involves the lighting, wiring and electrical protection systems in commercial and industrial buildings. This course will cover: lighting fundamentals, light sources, lighting system layouts for interior spaces, protection of electrical systems, fuses, circuit breakers, instrument transformers and protective relays, grounding and ground-fault protection, feeder design and branch circuits for lighting and motors. This course will include projects - designing lighting and wiring systems for commercial/industrial buildings.

ECET 4530

Industrial Motor Control
Prerequisites: ECET 2110, ECET 3500
3-3-4

This introductory design course is a study of manual and automatic, starters and controllers of ac and dc motors. The course will concentrate on three-phase induction motor starters and controllers with some study of dc motor starters and controllers. The induction motor coverage will include both full-voltage and reduced voltage techniques, with the emphasis on the reduced voltage methods. Line impedance, auto-transformer, wye-delta and part-winding starters will be included. The laboratory will consist of several projects in designing, testing and demonstrating various motor starters and controllers. The designs will require using Programmable Logic Controllers in the projects. The course will conclude with variable frequency drives.

ECET 4540

Introduction to Power Electronics
Prerequisites: ECET 2310, ECET 3500
3-3-4

An introduction to the devices, circuits and systems utilized in power electronics. An overview of power semiconductors: switches diodes, thyristors, gate turn-off thyristors, insulated gate transistors, MOS-controlled thyristors and other controllable switches. General power electronic circuits such as uncontrolled and phase controlled dc converters, dc -to-dc switch mode converters, switch mode dc-to-ac inverters and their application in motor drive, speed control and power supplies are included.

ECET 4610

Control Systems
Prerequisites: ECET 2310, MATH 2306
3-3-4

This course is a study of feedback control systems theory including practical applications of compensation and PID concepts. Control system modeling, transient and steady state characteristics, stability and frequency response are analyzed. Compensation and controller design using Root locus methods are covered. The use of control system software, such as MATLAB, in the analysis and design of control systems is emphasized.

ECET 4630

Digital Signal Processing
Prerequisites : ECET 2310, ECET 3220, MATH 2306
3-3-4

An introduction to the concept of discrete and digital signals and systems. Difference equations, Discrete Fourier Transforms (DFTs), Fast Fourier Transforms (FFTs), Z-Transform techniques, IIR filter design, and FIR filter design are covered. An introduction to the architecture, assembly language and application examples of general and special purpose microprocessors such as the TMS 320 and DSP56000 families is included.

ECET 4710

Network Programming and Interfacing
Prerequisites: ECET 3400, ECET 3810
3-3-4

Introduction to the application and design of embedded and networked PC systems. Programming emphasis will be Visual C++ including TCP/IP. Networking emphasis will be on an ethernet LAN connecting desktop and embedded PC's. Interfacing emphasis will be on robotic subsystems including vision, voice, motion-control, web-based data acquisition, and wireless sub-systems. WinCE and pocket PC networking will also be introduced.

ECET 4720

Distributed Microcontrollers and PCs
Prerequisites: ECET 3220, ECET 4710
3-3-4

A study of networked PIC microcontrollers connected to a host PC or several networked PCs. Two popular versions of various microcontroller architectures will be discussed. Software will emphasize both assembly language programming and ANSI C programming. Hardware will emphasize the bus interconnections between the devices such as RS232/RS485, I2C, CAN, SPI, etc. Example Real Time Operating Systems (RTOS) for microcontrollers is introduced as well. Development of a capstone project, through the design of a printed circuit board is also included.

ECET 4730

VHDL and Field Programmable Gate Arrays
Prerequisite: ECET 2210
3-3-4

Provide a thorough introduction to the Virtual Hardware Description Language (VHDL) and apply this knowledge to Field Programmable Gate Arrays (FPGA's). Current applications will be presented and students will design, develop, test and document complete FPGA based designs. The use of schematic capture tools for configuring FPGA's will also be covered.

ECET 4820

Communications Networks and the Internet
Prerequisites: ECET 3400
3-3-4

A study of the fundamental concepts, operational characteristics and design principles of digital networks. The course focuses on local-area and wide-area network topologies and protocols that are, used in the Internet. Topics include: TCP/ IP protocol, Internet standards, routing and switching devices, Internet organization, Ethernet and virtual LANS, Frame Relax, and an overview of computer network operating systems.

ECET 4830

Telecommunications Management
Prerequisite: ECET 3400
3-3-4

A study investigating the issues encountered by management in the telecommunications industry. Course covers such broad topics as: regulations, national and international standards, the management of several key telecommunications technologies and managing telecommunication professionals. Laboratory exercises are also designed to illustrate the management of telecommunications environments.

ECET 4840

Advanced Telecommunications
Prerequisites: ECET 2210, ECET 4820, ECET 3810
3-3-4

A study investigating several advanced telecommunications technologies and techniques. Course covers such topics as: electronic noise in communication systems, AM & FM transmissions, encoding techniques, telephony, synchronous and asynchronous protocols, the Internet and wireless technologies.

ECET 4850

Telecommunications Project
Prerequisites: ECET 4830 or concurrently, ECET 4840 or concurrently
3-3-4

This course teaches the student how to design, implement and troubleshoot advanced telecommunications networks. Both individual and team tasks are undertaken to challenge the student's acquired skill set. A comprehensive telecommunications project is completed, piece-by-piece, throughout the semester.

ECET 4901-4904

Special Topics
Prerequisite: Senior standing
1 to 4 hours

Special topics selected by the department. Offered on a demand basis.

Electrical and Computer Eng Tech Graduate

ECET 6001

Circuit and System Modeling with SPICE
Prerequisite: Semiconductor Device Theory and Applications; equivalent to ECET 2210, ECET 2310
3-3-4

A detailed study of circuit modeling using SPICE. The student will learn to model circuits and systems at the device level up to the behavioral level. This includes BJT and MOS transistors, op-amps, communications systems, control systems, etc. The student will also learn how SPICE numerical algorithms function and how to maximize the speed and accuracy of simulations.

ECET 6002

Programmable Devices
Prerequisites: Digital Theory and Applications, C and any AMS language equivalent to ECET 2210, ECET 4710
3-3-4

A study of the programming and applications of programmable devices for rapid time-to-market product development. Devices range from PLDs through MicroControllers through Programmable Analog devices. Practical experience will result from completing projects that develop systems using several of the devices.

ECET 6003

Advanced Test Engineering

Prerequisite: Fundamental Test Engineering equivalent to ECET 3600

3-3-4

An in-depth study of test engineering with emphasis on computer-aided instrumentation utilizing the IEEE-488 bus and protocols. LabVIEW for windows will be used to develop automated test systems and virtual instruments. Component, board, backplane, in-circuit, functional and systems testing will be researched and analyzed in relationship to cost, testability and fault analysis. Surface-mounted device and ASIC testing are also studied. Boundary-scan, VXI/VME, commercially available software and other test strategies will be explored.

ECET 6004

System Engineering

3-3-4

This course provides a knowledge base of those elements comprising good design practices beyond circuit design and analysis. Topics include: concurrent engineering, quality, reliability, maintainability, productivity, life-cycle cost, projectizing, manufacturing and logistic support.

ECET 6100

Discrete -time Signals and Systems

3-0-3

Underlying principles of discrete-time signals and digital signal processing. Topics include mathematical representation of discrete-time signals and systems, sampling theorem and aliasing, introduction to difference equations, IIR and FIR filters, Z-Transform, DFT, FFT and Spectral analysis. (Non-MSET majors only)

ECET 6101

Digital Signal Processing

3-3-4

This course is presented in three units. Unit one reviews underlying principles of discrete-time signals and systems, difference equations, and the design of finite impulse response and infinite impulse response filters. Topics of second unit include frequency response, Z-Transform, DTFT, DFT, and FFT with practical applications. The subject of third unit is implementation of digital filters and speech processing examples using popular DSP microprocessors such as TMS320, DSP56000, and ADSP21xxx families.

ECET 6102

Mechatronics

3-3-4

This course is about integrating electronics, mechanical engineering and computer science. It is essential for engineers or engineering technologists who have a need to work across disciplinary boundaries. The main topics covered in the course will be mechatronic system design which involves: 1) Modeling, analysis and control of dynamic physical systems; 2) Control sensors and actuators with special emphasis on brushless, stepper, linear and servo-motors; 3) Electronics for mechatronics with special emphasis on special purpose digital and analog integrated devices; and 4) Analog, digital and hybrid mechatronic systems such as hard-disk drives and robots.

ECET 6201

Advanced Digital Design

Prerequisites: Digital Theory and Application, C and Assembly Language equivalent to ECET 2210, ECET 4710

3-3-4

A detailed study of modern digital design principles and techniques. Topics will be investigated utilizing advanced programmable logic devices such as CPLD's, EPLD's, and FPGA's. Device development using

both VHDL and schematic capture tools will be thoroughly explored. Practical experience and additional insight will be gained in the design and development of practical solutions to modern problems.

ECET 6202

Embedded PC Systems
3-3-4

This course will focus on the latest developments in the field of embedded PCs (80186 & 80386ex processors). Emphasis will be on single-board systems used in the control environment. Customizing the ROM BIOS and developing ROM code will be studied. C, assembly language and real-time executive programming tools will be used.

ECET 6203

Topics in Machine Intelligence
3-3-4

The principles, theory and current applications of fuzzy-logic and neural-networks are covered in this course. Discussions will include how neural network simulations are used to solve decision-making tasks. Other topics included are machine vision and speech analysis. Practical experience and additional insight will result from students using the principles and theories studied in class to develop practical solutions to actual problems.

ECET 6204

Networked Embedded PCs
Prerequisite: ECET 6202
3-3-4

A course covering the basics of embedded PCs and their applications in networks and wireless systems. Covers the 80x86 architecture and C++ programming, then covers network programming using TCP/IP. Emphasizes connecting embedded PCs via Ethernet, wireless systems and the Internet. Also, Win CE development will be introduced.

ECET 6300

Telecommunications Networking
3-0-3

A study of the fundamentals of telecommunications systems, emphasizing the management viewpoint. Course covers voice and data networks, and the regulations and standards affecting them. Laboratory demonstrations will illustrate key concepts. Course cannot be used as credit for ECET majors.

ECET 6301

Telecommunications
Prerequisite: Communications background equivalent to ECET 3400, ECET 4820
3-3-4

The study of technologies and services deployed in today's public and private wide-area networks. Circuit-switched and packet-switched networks for voice and data will be studied. Topics include ISDN, X.25, SONET/SDH, ATM, and more. Students gain practical experience through detailed studies of actual WAN solutions used by various organizations.

ECET 6302

Digital Communication Networks
Prerequisite: Communications background equivalent to ECET 3400, ECET 4820
3-3-4

A detailed study of local area networks emphasizing characteristics, standards, protocols, and performance. Topics include Ethernet, Token Ring, routing, domain and peer networking, and network security. The configuration and interaction of networking devices, operation systems, and applications will be examined. Lab exercises and projects illustrate concepts.

ECET 6303

Wireless Communication Systems
Prerequisite: Communications background equivalent to ECET 3400, ECET 3410
3-3-4

A detailed study of wireless communication networks with special emphasis on applications, access techniques and interconnection with other networks. Topics include cellular telephones, personal communication systems, wireless LANs, and satellite systems. Students will gain practical experience by studying networks used by enterprises to enhance productivity and competitiveness.

ECET 6401

Linear Control System Analysis and Design
3-3-4

This course is a thorough study of Modern Control Systems. Both time-domain and frequency domain methods of analysis, design and compensation of linear feedback control systems are covered. Topics include Laplace Transform methods, State Space analysis, stability analysis using Root Locus and frequency response methods, Nyquist criterion, and practical examples of design and compensation of feedback control systems. This course will make extensive use of computer-aided design packages such as MATLAB.

ECET 6402

Power Flow Studies and Fault Analysis
Prerequisite: Power system analysis background equivalent to ECET 4510
3-3-4

This is a course on modern power system analysis and design. The first part of the course is devoted to the typical topics in Power System analysis. In the second part of the course, emphasis is placed on topics such as power flow solutions, symmetrical faults, symmetrical components and sequence networks, unsymmetrical faults and power system stability.

ECET 6403

Applications of Power Electronics in Electric Drive Systems
Prerequisite: Undergraduate machinery course equivalent to ECET 3500
3-3-4

This course combines electric machinery, control and power electronics. The first part of the course is devoted entirely to Power Electronics. The second part is devoted to the application of power electronics in the speed control of electric machinery. Both dc and ac motor drive systems are covered. MATLAB

and Spice will be extensively used for computation and verification purposes. Practical and hands-on experience will be gained using practical electric drive systems in the second part of the course.

ECET 6704

Project Proposal
Prerequisites: At least 24 hours completed toward degree and permission of project advisor
1-8-4

Guided by his/her Project Committee, the student will prepare a Proposal for his/her Masters Project. This proposal must conform to the published guidelines, be approved by the Project Committee and filed with the ECET office. In addition, the student will make substantial progress toward meeting the goals stated in the proposal and file an approved Progress Report. The filing of the Project-Committee approved Proposal and Progress Report will constitute completion of this course.

ECET 6901-6905

Special Topics
1 to 5 hours

The topic election and credit for this course will be by written agreement among the student, the instructor and the department head.

ECET 7504

Research
Prerequisites: At least 28 hours completed toward degree and permission of instructor
2-6-4

A seminar in research and development methods, current industrial practice and application of new technologies. Guided by the instructor, each student will choose a current topic in Electrical or Computer Engineering Technology, become informed about the principles and applications of that topic and ultimately produce a research report which is presented during the ECET Forum.

ECET 7704

Project
Prerequisites: ECET 6704 and permission of project advisor
1-8-4

Guided by his/her Project Committee, the student will complete his/her Masters Project. The student must demonstrate completion of the project to his/her committee and obtain the committee's approval. The student w ill prepare a final report that completely documents the project and will present this report to the department. Written acceptance by the Committee of the Final Report will constitute the completion of this course.

Engineering Graphics

EG 1210

Survey of Engineering Graphics
2-0-2

An introductory course in engineering graphics for non-MET majors. This course introduces the students to a broad range of engineering graphics topics. Manual drafting, freehand sketching, and computer-aided design (CAD) assignments cover theory and application in such areas as fundamentals of engineering graphics, drafting technique, lettering, orthographic projection, sectional views, pictorial drawings, dimensioning, and industry practices. (MET students may not take this course for credit.)

EG 1211

Engineering Graphics I
4-0-4

An introduction to engineering graphics in mechanical engineering and manufacturing with an emphasis on using computer-aided design (CAD) to produce finished engineering drawings according to industry and ANSI standards. Topics include fundamentals of engineering graphics, orthographic projection, sectional views, pictorial drawings, dimensioning, industry practices , file management, geometric construction, basic 3D coordinate geometry, surface models, parametric solid modeling, and drawing composition.

EG 1212

Engineering Graphics II
Prerequisite: EG 1211
4-0-4

A continuation of Engineering Graphics I, covering advanced concepts of 3D geometry, parametric solid modeling, boundary representation of solids, databases for manufacturing and inspection, an introduction to geometric dimensioning and tolerancing ac cording to the American National Standards Institute.

English

ENGL 1101

English Composition I
3-0-3

A composition course focusing on skills required for effective writing in a variety of contexts, with emphasis on exposition, analysis, and argumentation, and also including introductory use of a variety of research skills. Includes Regents' Essay practice and work in the ATTIC, as required. Final grade of "C" or better necessary to receive course credit. Special sections of the course may be offered that focus on the needs of those international students for whom English is a second language. Such sections will include a required lab hour in the ATTIC, but they will remain three-credit-hour courses.

ENGL 1102

English Composition II

Prerequisite: "C" or better in ENGL 1101

Note: Some sections of ENGL 1102 offer special topics for writing.

3-0-3

A composition course that develops writing skills beyond the levels of proficiency required by ENGL 1101, that emphasizes interpretation and evaluation, and that incorporates a variety of more advanced research methods. Includes Regents' Essay practice and work in the ATTIC, as required. Special sections dealing with a focused topic may be offered for international students for whom English is a second language. Such sections will include a required lab hour in ATTIC, but they will remain three-credit-hour courses.

ENGL 2110

World Literature

Prerequisite: ENGL 1102

3-0-3

A survey of important works of world literature. Includes Western and non-Western literature and deals with a variety of literary forms such as poetry, drama, nonfiction, short stories, and novels.

ENGL 2120

British Literature

Prerequisite: ENGL 1102

3-0-3

A survey of important works of British literature. Includes a variety of literary forms such as poetry, drama, nonfiction, short stories, and novels. The course presents literature as a reflection of culture and the history of ideas.

ENGL 2130

American Literature

Prerequisite: ENGL 1102

3-0-3

A survey of important works of American Literature. Includes a variety of literary forms such as poetry, drama, nonfiction, short stories, and novels. The course presents literature as a reflection of culture and the history of ideas.

ENGL 2141

Western Literature I

Prerequisite: ENGL 1102

3-0-3

A survey of literature of the Western world from the Sumerians through the Renaissance. The course includes drama, poetry, prose fiction, and nonfiction. It emphasizes literature as an art and as a reflection of the history of ideas.

ENGL 2142

Western Literature II
Prerequisite: ENGL 1102
3-0-3

A survey of literature of the Western world from about 1600 to the present. The course includes drama, poetry, prose fiction, and nonfiction. It emphasizes literature as an art and as a reflection of the history of ideas.

ENGL 2300

African-American Literature and Culture
Prerequisite: ENGL 1102
Note: This class can be used in place of ES1100 Ethnic Studies to satisfy the requirement in Area E, Group 4 of the core curriculum
3-0-3

An introduction to African-American literature in the context of a variety of cultural and historical perspectives. The course includes a variety of activities that draw upon literature, film, music, and live cultural experiences.

ENGL 3030

English Grammar for Professional Writing
Prerequisite: ENGL 1102
3-0-3

The syntax of modern English grammar and the study of levels of correctness in Contemporary Standard English for effective writing.

ENGL 4901-4903

Special Topics
Prerequisite: Consent of the Department Chair
1 to 3 hours

Special topics in literature. Offered by the department at its discretion.

Ethnic Studies

ES 1100

Ethnic Studies
3-0-3

An interdisciplinary course that introduces students to the culture and civilization (history, economy, art, architecture, etc.), literature, and religion of various ethnic groups. Instructor's choice will determine which ethnic group is the focus for the class (e.g., from Asian, African-American, Hispanic, or other areas).

Finance Graduate

FIN 6005

Financial Management
Prerequisite: MGNT 5653 or 3125 or equivalent
3-0-3

This course includes a review of capital budgeting and ratio analysis, making further extensions in the areas of probability-dependent project analysis, co-varying risks and optimal capital structure. Other topics include working capital management, insurance and hedging strategies.

French

FREN 1001

Elementary French I
3-0-3

Introduction to listening, speaking, reading, and writing in French and to the culture of French speaking regions. Not open to native speakers of French.

FREN 1002

Elementary French II
3-0-3

Continued listening, speaking, reading, and writing in French with further study of the culture of French speaking regions. For those students who have completed FREN 1001 or have had one year of French in high school. Not open to native speakers of French.

FREN 2001

Intermediate French I
Prerequisite: FREN 1002 or equivalent
3-0-3

A continuation of skills development of comprehension, speaking, reading of general and technical texts, writing, grammar and an introduction to Francophone cultures. Not open to native speakers of French.

FREN 2002

Intermediate French II
Prerequisite: FREN 2001 or equivalent
3-0-3

A continuation of FREN 2001. Not open to native speakers of French.

Geography

GEOG 1101
Introduction to Human Geography
3-0-3

A survey of global patterns of resources, population, culture and economic systems. Emphasis is placed upon the factors contributing to these patterns and the distinctions between the technologically advanced and less advanced regions of the world. Includes cultural, political, urban, and economic geography.

GEOG 3101
World Regional Geography
Prerequisite: GEOG 1101 or consent of the department head
3-0-3

Examines the geography of the world and its impact on population, urbanization, trade resources, and development as an ongoing framework for analysis and global perspective.

German

GRMN 1001
Elementary German I
3-0-3

An introduction to the German language and the culture of the German-speaking world. Beginning of a survey of basic German grammar and the development of the four language skills of listening, speaking, reading, and writing German. Some aspects of everyday life in the German-speaking world will also be introduced. Not open to native speakers of German.

GRMN 1002
Elementary German II
3-0-3

The second part of an introduction to the German language and the culture of the German-speaking world. Completion of the survey of Basic German grammar and further development of the four language skills of listening, speaking, reading, and writing German. Aspects of everyday life in the German-speaking world will also be introduced. For those students who have completed GRMN 1001 or have had one year of German in high school. Not open to native speakers of German.

GRMN 2001
Intermediate German I
Prerequisite: GRMN 1002 or equivalent
3-0-3

A continuation of skills development of comprehension, speaking, reading of general and technical texts, writing, grammar and an introduction to Germanic cultures. Not open to native speakers of German.

GRMN 2002

Intermediate German II
Prerequisite: GRMN 2001 or equivalent
3-0-3

A continuation of GRMN 2001. Not open to native speakers of German.

History

HIST 1011

World Civilization: Ancient
3-0-3

A survey of the cultural, political, economic, intellectual, and scientific development of early world civilizations from pre-historic times to the fall of Rome in the West, c.500 A.D.

HIST 1012

World Civilization: Medieval
3-0-3

A survey of the political, economic, intellectual, and social development of civilization from 500 A.D. through the Protestant Reformation of the 16th century (with emphasis on Christendom and Islam).

HIST 1013

World Civilization: Modern
3-0-3

A survey of the cultural, political, economic, intellectual, and scientific development from the emergence of the modern nation-state to the present.

HIST 2111

United States History I
3-0-3

United States history from the colonial period through Reconstruction. Emphasis on the interpretation of American institutions and ideas. Satisfies U.S. and Georgia history and government requirement.

HIST 2112

United States History II
3-0-3

The rise of the United States as in industrial power from the late 19th century to the present. Special emphasis on change and reform during this period. Satisfies U.S. and Georgia history and government requirement.

HIST 2911

U.S. Constitution and Georgia History
1-0-1

A one-hour course designed to help out-of-state transfer students meet the State of Georgia's legislative requirement that all students have knowledge of the U.S. Constitution and of Georgia history. May not be taken as an elective.

HIST 3200

History of Science Survey
Prerequisite: Junior standing or consent of the department head

3-0-3

Survey of developments in physical, biological, and human sciences and their connection to western culture from the sixteenth century to the present.

HIST 3250

History of American Technology
Prerequisite: Junior standing or consent of the department head
3-0-3

Survey of the development of technology and its impact on American society. Topics will include technology transfer and American innovation, the organization and mechanization of industrial production, and the technologies of cities, households, transportation, communication, and leisure.

HIST 3260

History of American Science and Medicine
Prerequisite: Junior standing or consent of the department head
3-0-3

Survey of the development of American science and medicine and their impact on American society. Topics will include the development of various fields of science, the relationship between science and government, the relationship between science and medicine, and the development of medical knowledge and practice.

HIST 3901-3903

Special Topics
Prerequisite: Consent of the department head
1 to 3 hours

Special topics in American or world history. Offered by the department on a demand basis.

Humanities

HUM 3901-3903

Special Topics
Prerequisite: Consent of the department head
1 to 3 hours

Special topics in humanities. Offered by the department at its discretion.

Industrial Engineering Technology

IET 1000

Orientation
1-0-1

A part of this course is devoted to an orientation to the department, to college policy, and to expectations for students. The rest of the course is devoted to an orientation to the field of Industrial Engineering.

IET 2305

Principles of Industrial Systems/Processes
3-3-4

As an introduction to industrial systems and processes, this course will explore the basic production processes from the viewpoint of systems and design. The role and responsibilities of a graduate will be explored as well as the principles related to human, quality, and organizational, legal and ethical aspects of professional practice. The design and operation of production processes are studied as they relate to the areas in manufacturing, distribution and service industries.

IET 2432

Engineering Product and Process Cost Estimating I
3-0-3

The first of a two-course sequence, the students will study and practice basic double entry accounting, including development of basic financial statements and the development and study of cash flow statements.

IET 2227

Industrial Statistics
Prerequisite: MATH 1113 and IT 1113
4-0-4

As a study of descriptive and inferential statistics and applied probability, the course includes measures of central tendency and variability, statistical sampling and estimation, probability distributions, introduction to hypothesis testing and nonparametric statistics. Industrial applications rather than theoretical developments are emphasized. Computer based solution techniques are used when appropriate. This is the first of a two-course sequence.

IET 3322

Work Measurement and Ergonomics
Prerequisites: IET 2227, IET 2305, EG 1210
2-6-4

This course will focus on work design and ergonomics in manufacturing. Topics will include work methods and production processes to improve operator effectiveness and reduce production costs. Techniques studied include operation analysis, motion study, work sampling, time study, line balancing and ergonomic applications.

IET 3334

Production and Inventory Control
Prerequisites: IET 3322

3-0-3

The concept of a basic production and an inventory control system are central to this course. Material requirements planning and master production scheduling are covered. Inventory planning from outside vendors or internal production are considered. Various forecasting techniques are examined.

IET 3339

Statistical Quality Control
Prerequisite: IET 2227
3-0-3

A study of the fundamentals of statistical quality control is provided. Topics include statistical process control with emphasis on applications and techniques including control charts for variables and attributes, and process capability. Other topics include scientific sampling fundamentals, acceptance sampling by attributes and variables, and reliability.

IET 3401

Project Organization and Control
Prerequisite: IET 2227, TCOM 2010
2-2-3

Commercially available project planning software will be examined and used as the students study the planning and control methods for industrial and production projects, including Critical Path Methods (CPM) and Program Evaluation and Review Technique (PERT). Topics include scheduling, updating and controlling projects, time-cost tradeoff, resource allocation, cost control for projects, and post-planning control. Project team formation, management and evaluation will be discussed.

IET 3403

Industrial Experimentation
Prerequisite: IET 2227
3-0-3

This second of a two-course sequence will review of basic statistics, estimation, confidence intervals and hypothesis testing. Techniques for gathering, analyzing, and presenting technical and engineering data are presented. Topics include chi-squared contingency tables and goodness-of-fit tests, one- and two-way ANOVA, regression analysis, and design of experiment. Computer-based solution techniques are used where appropriate.

IET 3410

Principles of Team Dynamics
Prerequisite: IET 2227
3-0-3

Students will learn the skills and techniques to succeed as a team member in the workplace. Topics include leadership and communication skills, social influences, decisions making and problem solving techniques, and team development.

IET 3424

Engineering Economy
Prerequisite: MATH 1113
3-0-3

As an introduction to the effect of the time value of money this course will use equivalent annual cost, present worth, internal rates of return, and benefit to cost ratios in making economic analysis. Tax

consequences, replacement theory and economic life will be examined in the analysis of engineering problems.

IET 3430

Industrial and Consumer Marketing
3-0-3

This course provides a detailed study into industrial marketing and the major factors that are involved in the successful marketing of an industrial product. This is compared and contrasted with the consumer marketing process. Emphasis is on industrial marketing from a technical sales perspective, and the techniques used to support a successful technical sales program. The similarities and differences to consumer sales are also discussed.

IET 3433

Engineering Product and Process Cost Estimating II
Prerequisites: IET 2432, IET 3424
3-0-3

This second course in a two-course sequence is devoted to a study of cost measurement related to manufacturing and non-manufacturing sectors through cost measurement and control in job order, process, standard and variable costing systems. Content includes the recording and control of material, labor and overhead costs, absorption and direct costing, budgeting, and cost volume profit and analysis.

IET 3434

Distribution Channels
3-0-3

This course offers a study of the operational and control aspects of distributorships which market industrial products. The course includes financial transactions of the wholesale distributor.

IET 3501

Service Systems Engineering
3-0-3

An overview of the major service industries in the United States, including Health Care, Distribution, Banking, and Retail will emphasize the engineers' role in these industries. Case studies will be used to study the rising prominence of the service sector in the American economy and the growing role of the engineer.

IET 4326

Wage and Salary Administration
3-0-3

The course is a study of the concepts and practices of compensation administration with emphasis on its motivational aspects. Essential stages of the compensation - reward system are included such as job design, job descriptions, job evaluation, and market comparison techniques for compensation program development.

IET 4354

Principles of Transportation
3-0-3

This course provides a study of general economic characteristics and government regulation of rail, motor, water, air, and pipeline carriers. The different forms of transportation are analyzed in terms of service rendered, costs, transit time, reliability, capability, accessibility, security, and traceability. Labor relations and currents issues in national transportation policy will also be discussed.

IET 4356

Quality Concepts and Systems Design
Prerequisite: IET 3339
3-0-3

Quality system principles, methodology, elements, and standards will be discussed. Emphasis will be given to the management, organization, creation, and evaluation of quality systems necessary to assure organizational and functional compliance with stated quality system requirements (of national and international standards, including the ISO/Q 9000 Series) and extensions thereof. Alternative quality systems are also explored, including more comprehensive Total Quality Systems.

IET 4375

Engineering Sales Law
3-0-3

This course offers a study of general law of property and bailments, sales and product liability, and patents, copyrights, and trademarks.

IET 4405

Principles of Operations Research
Prerequisite: IET 2227
3-0-3

This course will introduce the students to quantitative techniques used in the solution of industrial operations problems. Topics include linear programming, assignment and transportation techniques, queuing theory, decision analysis and computer simulation.

IET 4422

Plant Layout and Materials Handling
Prerequisites: IET 3322, IET 3433
2-4-4

Principles and practices in layout and material handling for industrial/service facilities planning are studied. A group project requires students to integrate product, process and functional design of a facility. Cost analysis for facility planning and operation is also utilized in the project.

IET 4427

Methods-Time-Measurement
Prerequisite: IET 3322
3-0-3

MTM- I is a predetermined time system which is used to establish labor standards on manual operations (machine operators, assembly operators, clerical operators, etc.). Emphasis is on the definitions and application rules of MTM-1. This course meets the MTM Association's prescribed format for MTM-1 Blue Card Certification. There is a lab fee for this course which covers the cost of the official MTM-1 textbook and registration as an MTM-1 Applicator for an initial three-year period.

IET 4435

Fundamentals of Engineering Sales
3-0-3

This course examines the basic fundamentals of personal selling in the context of selling industrial or technical products. Current readings and up-to-date selling techniques will also be examined.

IET 4437

Industrial Sales Development and Control
3-0-3

This course studies the basic principles underlying the development and control of a sales force. Topics covered include sales planning, selection and training of a sales force, sales compensation and motivation, establishment of sales territories and evaluation of sales personnel. Guest speakers will be invited to lecture the class.

IET 4447

Purchasing and Supply Chain Systems
3-0-3

This course offers a study of the planning of purchasing and materials activities. Topics covered will include specification and standardization, vendor evaluation, receiving and storage, pricing, reciprocity, negotiation, legal aspects, and computer based purchasing. Just-in-time (JIT) ordering, bar code labeling, and electronic data interchange (EDI) will also be examined.

IET 4449

Logistics Planning and Control
3-0-3

This course offers an analysis of decision making in the current logistics environment and the tools needed for finding solutions to problems relating to purchasing, inventory, transportation, and warehouse management.

IET 4451

Systems Simulation
Prerequisite: IET 4405
2-3-3

This is an in-depth study of simulation as applied to manufacturing, inventory and distribution systems. Topics will include basic simulation and system modeling techniques, random sampling procedures, production modeling, inventory modeling and system evaluation. Emphasis will be upon hands-on simulation of various operations using ARENA, a PC-based graphical simulation program.

IET 4460

Warehouse Operations
3-0-3

This course gives an in-depth approach to the proper ways to organize and operate a warehouse. Topics include warehousing, principles, site selection, facility design, facility size, JIT, automation, and advanced warehouse technology.

IET 4475

Senior Project
Prerequisite: IET 4422
1-6-3

This course focuses on the student completing a project that is a comprehensive application of the subject matter in the IET curriculum. A large-scale feasibility study is to be performed to emphasize the interrelated topics of logistical and production processes for a fictitious company. The course requires a formal written report and a defended oral presentation before industrial and academic experts.

IET 4478

Senior Internship
Prerequisites: IET 3403, IET 4422
2-6-4

The course focuses on the student's completing a project at an existing business under the joint supervision of the Southern PolyTech faculty and practicing professionals. The course requires a formal written report and a defended oral presentation.

IET 4500

Technical Sciences Survey
Prerequisites: PHYS 1112, CHEM 1211
4-0-4

The course provides a survey of engineering technical courses. Topics discussed will include mechanics of solids/fluids, material science, electrical principles and thermodynamics.

IET 4555

The Integrated Enterprise
3-0-3

A systems approach to control and operation of the industrial logistics network is studied. The use of an integrated information system will be emphasized. Interdependencies of the enterprise units will be investigated including order processing, production scheduling, inventory control, shipping and their related transactions.

IET 4901-4905

Special Topics
Prerequisite: Junior standing or consent of the department head
1 to 5 hours

Special problems selected by the department. Offered on a demand basis.

Information Technology

IT 1113

Programming Principles
Prerequisite: MATH 1113 or concurrent
3-0-3

This course covers the fundamentals of computer programming and the use of a computer for performing calculations and using data files. Concepts of counters, accumulators, decision-making, looping, subroutines, arrays, files and string processing are covered. A programming language such as Visual Basic is used for laboratory assignments.

IT 1324

Advanced Programming Principles
Prerequisite: CS 1301
4-0-4

This course introduces contemporary programming concepts of object-oriented data structure and abstractions, object-oriented data access techniques such as searching, sorting, and iterations. Problem solving in object-orientation is emphasized.

IT 3124

Hardware/Software Concepts
Prerequisite: IT 1324 or CS 1302
4-0-4

This course examines various hardware and software components and how they work together in a modern computing environment. Topics include an overview of computer organization and architecture, machine language and modern language.

IT 3204

Introduction to Web Development
Prerequisite: IT 1324 or CS 1302
4-0-4

This introduction course covers applications for the world wide web. Topics include current languages (such as HTML and JavaScript), basic web protocols, and human-computer interfaces for the web.

IT 3224

Software Development Life Cycle
Prerequisite: CS 3153
4-0-4

This course examines the software engineering life cycle. Topics include problem definition, systems analysis, requirements gathering, designing systems, development of systems, testing and implementation. Team projects will be done.

IT 3423

Operating Systems Concepts & Administration
Prerequisites: CS 3153 and IT 3124
3-0-3

An introduction to basic operating system principles. Topics include memory management, peripheral device management, file system management and process management. Different types of operating systems and their administrations are studied. Projects are carried out with simulations.

IT 3653

Client Server System Administration
Prerequisites: CS 3153 and IT 3124
3-0-3

This course covers the concepts of client server systems. Topics include aligning client server systems with business; client server methodologies; infrastructure; end users; communication tools; architectures; security; privacy; web development for client servers systems.

IT 3883

Applications Development Using JAVA
Prerequisite: IT 1324 or CS 1302
3-0-3

This course will look at how applications are built using the JAVA programming language. Topics include JAVA scripts as well as JAVA beans.

IT 4123

Electronic Commerce
Prerequisite: IT 1324 or CS 1302
3-0-3

This course will examine the aspects of electronic commerce. Topics include internet development, EDS, security, network connectivity and privacy. Basic business practices using electronic commerce will also be covered.

IT 4153

Advanced Database
Prerequisite: CS 3153
3-0-3

This course will study how databases are used with programming applications. Topics include advanced PL/SQL (or similar database programming language), database transaction, database security, database maintenance, and distributed and web databases.

IT 4203

Advanced Web Development
Prerequisite: IT 3204
3-0-3

This course covers more advanced topics on web server site design and development including server pages, programming, database integrations, and web server systems and security administrations.

IT 4323

Data Communications & Networks
Prerequisite: IT 3124
3-0-3

Fundamental concepts of computer networking. Topics include properties of signals and media, information encoding, error detection and recovery, LANs, backbones, WANs, network topologies, routing, Internet protocols, and security issues. The focus is on general concepts together with their application to support the business enterprise.

IT 4333

Network Configuration & Administration
Prerequisite: IT 4323
3-0-3

This course continues the study of networks. Topics include design and implementation of networks including synchronization, scheduling, exception and deadlock resolution, client server and web based collaborative systems. Network security will also be covered. Cost estimates and speed are examined from a management perspective.

IT 4683

Management of Information Technology
Prerequisite: CS 3153
3-0-3

A study of the information needs in a formal organization and the information systems required to meet those needs within the planning, control, operating and decision-making processes.

IT 4723

IT Policy and Law
Prerequisites: IT 3124 and IT 3224
3-0-3

This course covers current issues in IT including the law, ethics and social values. Topics include copyright, patents, trademarks, trade secrets, computer ethics, computer crime, computer abuse, cultural impact, web issues, information warfare and current legislation.

IT 4823

Information Security Administration
Prerequisites: IT 1124, CS 3153, and IT 3124
3-0-3

This course covers the major issues in securing information in today's IT environment. Topics include cryptography, computer security, database security, network security, web security, communication security, security policy and security system planning and administration.

IT 4903

Special Topics in Information Technology
Prerequisite: Junior or Senior standing
3-0-3

Special topics selected by the Department Chair. Offered on a demand basis.

Information Technology Graduate

IT 5113

Advanced Programming and Applications
Prerequisite: IT 1113 or equivalent
3-0-3

This course includes topics in beginning data structures, including arrays, stacks and queues. In addition, the course examines different computer applications concentrating primarily on those used in business and management. CS and MSSE students cannot receive credit for this course.

IT 5123

Web Development
Prerequisite: IT 5113 or equivalent
3-0-3

This course examines how to create applications for the world wide web. Topics include current languages (such as HTML, XML, CGI, JAVA Script) and human-computer interfaces for the web.

IT 5133

Data Communications & Networks
Prerequisite: IT 5113 or equivalent
3-0-3

Fundamental concepts of computer networking. Topics include properties of signals and media, information encoding, error detection and recovery, LANs, backbones, WANs, network topologies, routing, Internet protocols, and security issues. The focus is on general concepts together with their application to support the business enterprise.

IT 6403

Windows Application Development
Prerequisite: CS 5153 or equivalent
3-0-3

This course covers the logical analysis, design, development, testing and implementation of a windows system. Students will implement an object-based, event-driven design using a programming environment.

IT 6473

Multimedia Applications
Prerequisite: CS 5153 or equivalent
3-0-3

This course introduces students to current practices, technologies, methodologies, and authoring systems in the design and implementation of systems that incorporate text, audio, images, animation and full-motion video. Students will complete multimedia projects using state-of-the-art tools.

IT 6643

Issues in Information Management
3-0-3

This course addresses current issues relating to computers, ethics, and social values. Topics include computer ethics, computer crime, abuse, social responsibility, risk analysis, computer law and cultural impact. Library and internet research components are included, and a major research paper is required.

IT 6663

Data Center Management
Prerequisite: CS 5153 or equivalent
3-0-3

Issues in setting up and running a multi-user computer or data system. Includes RFP generation, vendor selection, project planning and control methods, backup and disaster recovery plans, site preparation, managing help desks, end user training, IT professional development, contract negotiation, outsourcing relationships and job scheduling.

IT 6683

Management of Information Technology
Prerequisite: CS 5153 or equivalent
3-0-3

A study of the use of computer and information management systems in the management of organizations. Includes formal characterization of management structures, identification of information needs, and integrated tools for providing MIS support. Major project included.

IT 6723

Managing Operating and Network Systems
Prerequisite: IT 5133 and CS 5153, or equivalent
3-0-3

This course covers the installation and management of operating systems and telecommunications networks, including cost-benefit analysis, and evaluation of connectivity options. Students learn to evaluate, select and implement different operating and communications options to support an organization.

IT 6733

Database Administration
Prerequisite: CS 5153 or equivalent
3-0-3

This course covers data administration and management, backup/recovery, security, access control, performance monitoring and tuning, data warehousing, data mining, online analytical processing, centralized versus distributed environments, client server and world-wide-web database integration.

IT 6753

Advanced Web Concepts & Applications
Prerequisites: IT 5123 and CS 5153, or equivalent
3-0-3

This course covers web services and content management for advanced web applications. Students will gain familiarity with: advanced business concepts for the web; best practices and development processes for web applications; and a variety of appropriate web tools both in the proprietary and open source domains.

IT 6763

Electronic Commerce
Prerequisite: CS 5153 or equivalent
3-0-3

This course covers tools, skills, business concepts, and social issues that surround the emergence of electronic commerce. The student will develop an understanding of the current practices and opportunities in EDI, electronic publishing, electronic shopping, electronic distribution, electronic collaboration and database issues. Other issues include standards, security, authentication, privacy, intellectual property, acceptable use, legal liability, and economic analysis.

IT 6903

Special Topics in Information Technology
Prerequisite: CS 5153 or equivalent
3-0-3

Special topics selected by the Department Chair. Offered on a demand basis.

IT 7803

Master's Thesis
Prerequisite: Consent of both the department chair or graduate coordinator and the thesis advisor
3-0-3

The thesis is designed for students wanting a research focus to their degree. The student works independently under the supervision of a designated faculty member on a thesis of substance in information technology. The student will generate a formal written thesis and give a final defense of the thesis. The course may be repeated, but only 6 hours may be applied toward the degree.

IT 7833

IT Strategy and Policy
Prerequisite: CS 5153 and consent of department chair or graduate coordinator
3-0-3

This is a capstone course in which students complete a major project which integrates elements of the field.

WebBSIT

WBIT 1100

Introduction to Information Technology
3-0-3

This course is an introductory course in information technology. Topics include foundations in hardware, software, data and an overview of the use of information technology in organizations. Topics include structured programming techniques, systems development, database design and networking, with an emphasis on appropriate business ethics, interpersonal skills and team building.

WBIT 1310

Programming and Problem Solving I
Prerequisite: WBIT 1100 and a 'C' or better in an Area A MATH course
3-0-3

This course helps students to develop basic problem-solving skills using the Java programming language. Students are introduced to fundamentals of Java programming language with emphasis on primitive data types, control structures, methods, arrays, classes, objects, abstraction, inheritance and polymorphism. Students learn basic techniques of good programming style, design, coding, debugging, and documentation. Students are able to create programs to solve basic practical problems.

WBIT 2000

The Enterprise and IT
Prerequisite: WBIT 1100
3-0-3

This course will look at the structure and management of an information technology infrastructure. From the management aspect the course will touch on principles and practices of managing both people and technology to support an organization. The course will emphasize how to make an information technology infrastructure effective, efficient, and productive. The management of hardware, software, data, networks and other supporting IT functions will be studied.

WBIT 2300

Discrete Math for IT
Prerequisite: MATH 1113 or equivalent
3-0-3

Discrete (as opposed to continuous) mathematics is of direct importance to the fields of Computer Science and Information Technology. This branch of mathematics includes studying areas such as set theory, logic, relations, graph theory, and analysis of algorithms This course is intended to provide students with an understanding of these areas and their use in the fields of Computer Science and Information Technology.

WBIT 2311

Programming and Problem Solving II
Prerequisite: WBIT 1310 and 2300
3-0-3

The emphasis of this course is on advanced programming techniques in Java including GUI's, software reuse through component libraries, recursion, event-driven programming, database processing, file processing, and exception handling. Students are able to create event-driven, graphical programs or text-based programs solving practical problems incorporating databases and external files.

WBIT 3010
Technical Communication
Prerequisite: ENGL 1102
3-0-3

This course covers workplace communication at the intermediate level. Topics include audience analysis, research proposal and report writing, document and visual design, editing and presentation design.

WBIT 3110
Systems Analysis and Design
Prerequisite: WBIT 1310 and 2000
3-0-3

Introduces the fundamental principles of the design and analysis of IT applications. In this course, students will learn to apply the tools and techniques commonly used by systems analysts to build and document IT applications. Classical and structured tools for describing data flow, data structure, process flow, file design, input and output design, and program specification will be studied, as will object-oriented techniques.

WBIT 3111
Information Technology Project Management
Prerequisite: WBIT 3110 and Statistics
3-0-3

Project management techniques and tools as applied to information systems projects including resource and personnel management and allocation, product testing, scheduling, and project management software. Students will study examples of both successful and unsuccessful projects and apply lessons learned to a class project.

WBIT 3200
Database Design, Development and Deployment
Prerequisite: WBIT 2311
3-0-3

An advanced course in database design, development and deployment. Course emphasizes database design drawing distinctions between data modeling and process modeling using various modeling techniques including Entity-Relationship Modeling, Object Modeling and Data Flow Diagramming; database development using the relational model, normalization, and SQL; database deployment including control mechanisms, forms, reports, menus and web interfaces. Additional topics include procedures, functions, packages and triggers. Students will design, create and process a database to demonstrate competency in the course content.

WBIT 3400
Introduction to Multimedia
Prerequisites: Introduction-to-Information- Technology.
3-0-3

This course covers the basic design principles and tools for creating multimedia components used in web-based systems; use of tools to create and edit graphics, sounds, and animations to be used in multimedia presentations.

WBIT 3410

Web Applications Development
Prerequisite: WBIT 1100
3-0-3

The course provides a survey of techniques and tools for developing basic web pages for delivery of text and graphic information; focus on page markup languages, client-side scripting, page design principles, page layout techniques, markup language syntax, and page styling methods.

WBIT 3500

Architecture and Operating Systems
Prerequisite: WBIT 1100
3-0-3

This course introduces students to the architectures of computer systems and the operating systems that run on them. It explores and gives experience with some common computer designs and operating systems. Topics include basic computer architecture, instruction set architecture, memory, memory management, processes, and file systems.

WBIT 3510

Data Communications and Networking
Prerequisite: WBIT 3500
3-0-3

This course covers computer network and communications concepts, principles, components, and practices; coverage of common networking standards, topologies, architectures, and protocols; design and operational issues surrounding network planning, configuration, monitoring, troubleshooting, and management.

WBIT 3600

Introduction to E-Commerce
Prerequisite: WBIT 3110 and 3410
3-0-3

The emphasis of this course is on basic principles and practices of E-business and E-commerce. Topics include infrastructures and applications of E-commerce, E-Tailing, E-Marketing, advertisement, B2B, B2C, C2C, E-Government, M-Commerce, E-Learning, electronic payment systems, security, and legal issues. Students also learn to build simple dynamic E-commerce sites using server-side scripting.

WBIT 4020

Professional Practices and Ethics
Prerequisite: Senior standing
3-0-3

This course covers historical, social, economic and legal considerations of information technology. It includes studies of professional codes of ethical conduct, philosophy of ethics, risk analysis, liability, responsibility, security, privacy, intellectual property, the internet and various laws that affect an information technology infrastructure.

WBIT 4030

Senior Project & Portfolio
Prerequisite: Senior standing
3-0-3

A capstone course for BSIT majors that includes completion of a digital portfolio, an electronic resume representing skills acquired and projects completed. The portfolio will be introduced in an earlier course and students will be expected to add to the portfolio selected assignments during their last few semesters. Faculty will include Portfolio comments and students will be expected to record reflections on accomplishments. Finally, in cooperation with the IT industry, students will be expected to secure an internship and document internship hours, objectives and supervisor evaluations in the Portfolio.

WBIT 4112

Systems Acquisition, Integration and Implementation
Prerequisite: WBIT 3110, 3200, and 4520
3-0-3

Most IT applications used by organizations are configured from components that have been purchased from third-party vendors. This includes both hardware components and, increasingly, software components. In this course, students will study the component acquisition process, and methods and techniques for integrating these components into an existing IT infrastructure.

WBIT 4120

Human-Computer Interaction
Prerequisite: WBIT 2311
3-0-3

Fundamentals of human-machine interfaces, both cognitive and physical. Learning styles and effects of short-term memory on cognition and reaction will affect hardware and software development. Students will design a prototype interface.

WBIT 4520

Information Security
Prerequisite: WBIT 3500
Co-requisite: WBIT 3510
3-0-3

This course is an introduction to information security in computing. Topics include computer, network (distributed) system and cyber security, digital assets protection, data backup and disaster recovery,

encryption, cryptography, computer virus, firewalls, terrorism and cyber crimes, legal, ethical and professional issues, risk management, information security design, implementation and maintenance.

WBIT 4601

Customer Relationship Management
Prerequisite: WBIT 3111, 3200, and 3600
3-0-3

The applications of IT applications has allowed many organizations to collect large amounts of data on their clients and to use such data to improve the relationships with their customers. In this course, students will study customer relationship management systems, including the reasons for their emergence, the functionalities that they provide and the issues one would have to face to successfully introduce a Customer Relationship Management System into an organization.

WBIT 4602

E-Commerce Design and Development
Prerequisite: WBIT 2311, 3200, and 3600
3-0-3

Students will develop an understanding of the complexities of electronic commerce. The course will include surveys of Internet technologies, web development software, e-commerce models, purchase and payment systems, interfaces with business systems, legal issues, international issues, and marketing and promotion of e-commerce systems. Students will develop prototypical electronic commerce systems.

WBIT 4610

E-Commerce Policy and Law
Prerequisite: WBIT 3600
3-0-3

This course will focus on the legal implications of conducting business over the Internet, including current understanding of Internet contracts, copyright, trademark and patent law. Further, this course will examine cutting-edge cases relating to e-commerce and emerging ethical issues and trends.

Mathematics

MATH 1111

College Algebra

Prerequisite: A grade of “C” or higher in MATH 0099 or placement by the Mathematics Assessment Test

3-0-3

A functional approach to algebra which incorporates the use of appropriate technology. Review of symbolic manipulation and solutions of equations and inequalities. Linear, quadratic, polynomial, exponential, and logarithmic functions, graphs and applications. A grade of "C" or better is required for course credit.

MATH 1113

Precalculus

Prerequisite: A grade of "C" or higher in MATH 1111 or Placement by the Mathematics Assessment Test

4-0-4

Rational and transcendental functions and graphs. Triangle and analytic trigonometry including identities, equations, and applications. Law of Sines, Law of Cosines, applications of trigonometry to vectors and complex numbers. Systems of equations using matrices. A grade of "C" or better is required for course credit.

MATH 2240

Survey of Calculus

Prerequisite: A grade of "C" or better in MATH 1113 or Placement by the Mathematics Assessment Test

3-0-3

Derivatives and integrals of polynomial, rational, logarithmic and exponential functions. Variable rate of change, amount of accumulated change, and graphing. Applications to problems in business, management, and economics are emphasized, with some attention to problems in the social sciences. No student may receive credit f or both MATH 2240 and MATH 2253.

MATH 2253

Calculus I

Prerequisite: A grade of "C" or higher in MATH 1113 or Placement by the Mathematics Assessment Test

4-0-4

A first course in Calculus. Limits, derivatives and integrals of algebraic and trigonometric functions, tangent lines, instantaneous rate of change, maxima, minima and graphing, related rates, linear motion. Also included: definite integrals, area between curves, moments, work, and volumes of rotation. No student may receive credit for both MATH 2240 and MATH 2253.

MATH 2254

Calculus II
Prerequisite: MATH 2253
4-0-4

A continuation of MATH 2253. Topics include differentiation and integration of transcendental functions, integration techniques, indeterminate forms, infinite sequences and series, Taylor and Maclaurin series, parametric equations, L'Hopital's Rule, improper integrals, and polar coordinates.

MATH 2255

Calculus III
Prerequisite: MATH 2254
4-0-4

Topics include: vectors in two and three dimensions, dot and cross product, lines and planes in space, cylindrical and spherical coordinates, vector functions, tangents and normals, velocity and acceleration, arclength and curvature, functions of several variables, partial derivatives, chain rules, directional derivatives and gradients, tangent planes and extrema, multiple integrals in rectangular, polar, cylindrical, and spherical coordinates.

MATH 2260

Probability and Statistics I
Prerequisite: MATH 1113
3-0-3

Topics include expectation, independent and conditional probability, combinations and permutations, organization and analysis of data, standard probability distributions, and hypothesis testing. The emphasis is on the applications and methods with applicability in technical and managerial fields.

MATH 2306

Ordinary Differential Equations
Prerequisite: MATH 2254
3-0-3

Methods of solving ordinary differential equations of first and higher order. Systems of linear differential equations and solutions using the Laplace transform. Fourier series. Mechanical and electrical engineering applications are included.

MATH 2335

Numerical Methods I
Prerequisites: MATH 2254, knowledge of a higher level programming language
3-0-3

Methods of numerical computation. Error analysis, solutions of equations, interpolation, quadrature, and linear systems. The course emphasizes the effective application of numerical approximation techniques in the solution of problems frequently encountered in engineering and science.

MATH 2345

Discrete Mathematics
Prerequisite: MA TH 1113
3-0-3

An introduction to the fundamentals of discrete mathematics. Topics include sets, formal logic, methods of proof, counting, relations, functions, graphs and trees, and finite state automata.

MATH 2901-2905

Special Topics
1 to 5

Special topics in mathematics. Either a course taught on a onetime basis or a pre-arranged project conducted by specific written arrangement with an individual instructor.

MATH 3256

Linear Algebra and Calculus
Prerequisite: MATH 2255
3-0-3

Topics include: Matrices and matrix algebra, determinants, linear systems of equations, change of coordinates, eigenvalues, linear and quadratic approximations, extrema for functions of several variables, Lagrange multipliers, vector fields, line integrals, conservative fields and path independence, Green's Theorem, parametric surfaces, surface integrals, Divergence Theorem, Stoke's Theorem.

MATH 3261

Probability and Statistics II
Prerequisite: MATH 2260
3-0-3

The use of a software package, such as MINITAB, is integrated with descriptive statistics, simulation, confidence intervals and hypothesis testing. Hypothesis testing/confidence interval topics include large and small tests for the population mean, large sample tests for the population proportion, correlation and regression on one and several variables and chi-square testing. As time permits, additional topics may be covered.

MATH 3268

Probability Theory
Prerequisite: MATH 2254
3-0-3

Axioms of probability, counting techniques, discrete and continuous univariate and multivariate random variables, expectation, Markov Inequality, moment generating functions, and applications of probability to statistical decisions.

MATH 3310

Introduction to Advanced Mathematics
Prerequisites: MATH 2254, MATH 2345
3-0-3

This course is designed to provide a transition to higher level mathematics through a hands -on introduction to creative problem solving, formal mathematical concepts, and proofs. Topics include logic, proofs, induction, formal systems, and set theory.

MATH 3312

Linear Algebra
Prerequisite: MATH 2254
4-0-4

An axiomatic treatment of real vector spaces, including computational and theoretical basics. Topics include bases, subspaces, linear transformations, matrix operations, diagonalization, inner product spaces, and eigenvalues.

MATH 3320

The Real Line
Prerequisite: MATH 2254
4-0-4

The structure of the real number system line from a topological and analytical point of view. Topics include the continuous nature of the real line, open and closed sets, sequences and formal convergence, compactness, topics related to functions of a real variable.

MATH 3321

Functions of a Real Variable
Prerequisite: MATH 3320
4-0-4

A continuation of MATH 3320. Topics include continuity, uniform continuity, formal definitions of the derivative and integral, covers, and composite functions.

MATH 3336

Numerical Methods II
Prerequisites: MATH 2306, MATH 2335
3-0-3

A continuation of MATH 2335. Systems of equations, approximation theory, and differential equations. Understanding the nature and limitations of each method is emphasized.

MATH 3496

Number Theory
Prerequisite: MATH 2254
3-0-3

An introductory course. Topics include divisibility, prime number theory, congruences, multiplicative functions, quadratic residues, and applications to cryptology.

MATH 3596

Topology
Prerequisite: MATH 2254
3-0-3

Topics include set theory, metric spaces, topological spaces, open sets, subspaces, continuity, connectedness, and compactness.

MATH 3901-3905
Special Topics
1 to 5

Special topics in mathematics. Either a course taught on a onetime basis or a pre-arranged project conducted by specific written arrangement with an individual instructor.

MATH 4406
Differential Equations II
Prerequisite: MATH 2306
3-0-3

Topics include orthogonal functions, Sturm-Liouville problem, boundary value problems for partial differential equations, the heat equations, wave equation, Laplace equation and power series solutions. Included are Bessel functions, Legendre polynomials, and their applications.

MATH 4407
Vector Analysis
Prerequisite: MATH 2255
3-0-3

Scalar and vector fields, the del operator, curl, divergence, line integrals, conservative fields and potentials, and surface integrals. The divergence theorem and Stokes' theorem. Applications to electromagnetic fields and to heat and fluid flow.

MATH 4417
Functions of a Complex Variable
Prerequisites: MATH 2255
3-0-3

An elementary introduction to complex analysis, the complex plane, mappings and analytical functions of a complex variable, continuity, differentiation, and integration, Taylor and Laurent series.

MATH 4440
Abstract Algebra
Prerequisite: MATH 3312
4-0-4

A first course in abstract algebra. Topics include operations, the concept of homomorphism, and a standard approach to groups, rings, and fields.

MATH 4451

Applications of Mathematics
Prerequisites: MATH 2306, MATH 3256;
Prerequisites or Co-requisites: MATH 3321, MATH 4440
3-0-3

Projects in the application of mathematics to various problems, including those of business, industry and science. The emphasis is on the formulation and solution of problems using known mathematics.

MATH 4901-4905

Special Topics
1 to 5

Special topics in mathematics. Either a course taught on a onetime basis or a pre-arranged project conducted by specific written arrangement with an individual instructor.

Mechanical Engineering Technology

MET 1000

Mechanical Engineering Technology Orientation
1-0-1

An introduction to career opportunities in the Mechanical Engineering Technologies; familiarization with college and departmental policies, curriculum, and facilities.

MET 1311

Manufacturing Processes
3-0-3

An introduction to industrial manufacturing processes used for converting raw materials into finished products. Various processes, machinery, and operations will be examined with emphasis placed on understanding engineering materials and processing parameters that influence design considerations, product quality, and production costs.

MET 1321

Manufacturing Processes Lab I
Prerequisite: MET 1311 or concurrently
1-3-2

An introduction to the use and operation of selected industrial machinery, various machining operations, selected welding processes and precision measuring instruments. Laboratory projects will emphasize safety and apply selected manufacturing processes, various inspection processes, fixturing and engineering materials.

MET 1901-1905

Special Topics
Prerequisite: Consent of the Department Chair
1 to 5 hours

Special topics selected by the program. Offered on a demand basis.

MET 2322

Manufacturing Processes Lab II
Prerequisites: EG 1212, MET 1000, MET 1321
2-3-3

An introduction to the use and operation of selected Computerized Numerical Control (CNC) machine tools and to Geometric Dimensioning And Tolerancing (GD&T). Laboratory projects will apply selected manufacturing processes, GD&T and CNC programming logic. Emphasis is placed on the following: safety, operational planning, design considerations, bonus tolerance, virtual condition, work holding requirements and manufacturing problems associated with engineering materials.

MET 2901-2905

Special Topics
Prerequisite: Consent of the Department Chair
1 to 5 hours

Special topics selected by the program. Offered on a demand basis.

MET 3101

Fluid Mechanics
Prerequisites: TCOM 2010, MATH 2254, MET 3121
3-3-4

A study of the fundamentals of fluid statics and dynamics including hydrostatic forces on submerged plates, continuity of fluid flow and fluid flow principles. Applications of turbulent and laminar flow in conduits are emphasized. The systems approach is practiced in analyzing the application of flow measuring devices, piping, pumps and turbines. The laboratory reinforces the principles of fluid mechanics as they apply to incompressible fluid flow and low speed air flow. Developing experimental data into effective laboratory reports is emphasized.

MET 3121

Statics
Prerequisites: MATH 2254 or concurrently, PHYS 1111K or PHYS 2211K
3-0-3

The calculation of forces and moments acting on machine parts, frames, and structures. The equilibrium of force systems, shear and moment diagrams for beams, and friction are studied.

MET 3122

Dynamics
Prerequisite: MET 3121
3-0-3

A study of the mechanics of particles and rigid bodies. Topics covered include: kinematics and kinetics of particles; work and kinetic energy; impulse and momentum; rigid body motions; relative motion and moving coordinate systems; and an introduction to mechanical vibrations.

MET 3123

Dynamics of Machines
Prerequisites: CS 2123, MET 3122
3-0-3

The analysis of motion, velocity, acceleration, and forces in mechanisms and machines. Emphasis is placed on the analytical methods suitable for computerized analysis as well as graphical methods for visualization and preliminary design studies. Mechanical vibration isolation is also discussed.

MET 3131

Strength of Materials
Prerequisites: TCOM 2010, MET 3121
3-3-4

A study of stress and strain of deformable bodies in tension, compression, bending, and torsion. Topics covered include: axial stress and strain; thermal stress and strain; statically indeterminate systems; torsional stress and strain; power transmission in shafts; bending stresses in beams; beam deflections; combined stresses; elastic buckling in columns; and finite element analysis methods.

MET 3132

Engineering Materials
Prerequisites: CHEM 1211K; Co-requisite: MET 3131
3-3-4

A study of metals, ceramics, polymers, and composites as related to design. Areas include corrosion, atomic structure, mechanical properties, failure theories, fatigue, creep, cold working, heat treating, alloying, and non-destructive testing. The lab work includes tensile testing, heat treating, impact testing, hardness testing, and corrosion.

MET 3331

Tool Design
Prerequisites: MET 2322, MET 3131
3-0-3

Jigs and fixtures for production machining processes are covered. Specific subjects include methods of gauging work pieces, ease and simplicity of operation, assembly methods, capital evaluation, techniques for locating and holding work pieces, time studies, tool steels, bending allowances, and reverse engineering techniques. The course is design project oriented. Projects include calculations of tooling forces and costs as well as complete production drawings of the tool design.

MET 3400

Survey of Thermodynamics
Prerequisites: MATH 2253, PHYS 1111K or PHYS 2211K
3-0-3

A study of the fundamental laws of thermodynamics and heat transfer for non-MET students. Properties of ideal gases, mixtures of ideal gases, real substances as related to heat engines, heat pumps, refrigerators, and heat exchangers are covered. Basic applications of thermodynamics in the study of power plants, internal combustion engines, refrigeration systems and air conditioning systems are included. Heat transfer topics are introduced with applications for conduction, convection, and radiation. (This course may not be taken for credit by MET students).

MET 3401

Thermodynamics I
Prerequisites: MATH 2253, PHYS 1111K or PHYS 2211K
3-0-3

Covers the fundamentals of thermodynamics. Use of steam and gas tables is introduced. Property relations for ideal gases and incompressible liquids are introduced. Applications of the First and Second

Laws to closed and open systems are studied. Heat engines, refrigerators, heat pumps, availability and irreversibility are studied.

MET 3402

Thermodynamics II
Prerequisites: MET 3101, MET 3401
3-0-3

Continuation of Thermodynamics I with emphasis on applications. Transient flow analysis, combustion, internal and external combustion cycles, gas turbines, compressors, refrigeration and air conditioning processes are studied. Fundamentals of heat transfer are also covered.

MET 3901-3905

Special Topics
Prerequisite: Consent of the Department Chair
1 to 5 hours

Special topics selected by the program. Offered on a demand basis.

MET 4124

Vibrations and Advanced Dynamics
Prerequisites: MATH 2306, MET 3122
3-0-3

Theory of mechanical vibrations with applications to machinery and the kinematics and kinetics of three dimensional motion of rigid bodies are covered. Conventional and computer methods are used.

MET 4133

Advanced Engineering Materials
Prerequisite: MET 3132
3-0-3

The course covers polymers, ceramics, composites, and advanced topics in ferrous and non-ferrous metallurgy. Advanced topics in mechanics of materials, including failure theories and analysis of composites are studied. Traditional methods and Finite Element Modeling and Analysis (FEM/FEA) are used.

MET 4141

Machine Design I
Prerequisites: EG 1212, MET 3122, MET 3132
4-0-4

The design of machines and machine elements, and cost considerations. The course focuses on power transmission in machines including gears, belts, pulleys, bearings, lubrication, clutches, brakes, chains, power screws, and gear trains. Stress calculations and material selection are discussed. Broad design issues such as safety, ethics, patents, product liability, time value of money, return on investment, and breakeven analysis are covered. Students work in design teams on a major design project.

MET 4142

Machine Design II
Prerequisite: MET 4141
3-0-3

A continuation of Machine Design I, with emphasis on topics related to the design of machine elements for structural integrity, reliability, and economy. Application of advanced topics in strength of materials to machine design. The course includes a major design project.

MET 4332

Advanced Tool Design
Prerequisite: MET 3331
3-0-3

Basic principles of the design of the material removal tools are studied, including basic cutting tool mechanics and heat transfer effects. Turning, milling, drilling and punch press operations are covered both for selection of a cost effective manufacturing technique and for learning the intricacies of the technique. The case study approach is used to illustrate course materials.

MET 4341

Automation Systems and Controls
Prerequisite: MET 4421
2-3-3

The technology of integrating automation equipment for use in manufacturing processes is covered. Students design demonstrations and complete projects involving the interfacing of Numerical Control machines, flexible automation devices, and other material handling systems. Programming and sensory techniques, as well as identification systems are investigated. Data collection, quality management and control are included.

MET 4342

Numerical Control of Machines
Prerequisites: CS 2123, MET 2322
2-3-3

A course in tooling and programming for Computer Numerical Control (CNC) machines. The course includes G-Code, conversational, and Computer Aided Manufacturing (CAM) programming languages and systems. Considerable emphasis on the integration of NC planning and programming into automated manufacturing systems. Topics in communications and computer networking for Direct Numerical Control (DNC) are discussed.

MET 4351

Manufacturing System Design Project
Prerequisites: MET 4332, MET 4342 or consent of the department head
0-9-3

The Manufacturing Design Project is the capstone course for the Manufacturing Concentration in MET. Projects are assigned based on interest, equipment and software availability, and the specific background of the student. Projects require planning, proposal presentation, scheduling, engineering, implementation,

and written and oral presentations of project results. Students are encouraged to "design and build" and utilize concepts learned from the courses completed in the MET Manufacturing Concentration. Presentation and report writing skills are practiced.

MET 4411

Refrigeration
Prerequisite: MET 3402
3-0-3

The theory and applications of commercial refrigeration systems are studied. The thermodynamic analysis of the refrigeration cycle, load calculations and selection of components for refrigeration systems are covered.

MET 4412

Air Conditioning
Prerequisites: MET 3101, MET 3402
3-0-3

The basic principles of residential and commercial air conditioning systems are introduced including the calculation of cooling and heating loads, and psychrometric processes. The student is exposed to relevant topics in heating, ventilating and air conditioning (HVAC) such as equipment selection, duct design, piping design, indoor air quality, energy code, HVAC systems, energy conservation options, automatic controls, and testing, adjusting and balancing (TAB) of air conditioning systems.

MET 4421

Instruments and Controls
Prerequisites: ECET 3000 or concurrently; CS 2123, MATH 2306, MET 3131
3-3-4

This course covers the principles of engineering experimentation and process control. Students are instructed in current methods of data gathering, data regression, graphical analysis, result compilation, and report writing. Data gathering will include both manual techniques and computer data acquisition systems. An understanding of sensor selection, interfacing, and implementation is provided through lecture and laboratory assignments. The fundamentals of uncertainty analysis along with the application of dimensional analysis and similitude are covered. Programmable Logic Controllers (PLC's) are used to introduce students to process control. Laboratory exercises illustrating the use of instrumentation for performance evaluation and control of mechanical systems are conducted.

MET 4431

Plant and Power Applications
Prerequisite: MET 3402
3-0-3

A study of the applications of fluid mechanics, thermodynamics and heat transfer to industrial process plants. Fundamentals of piping design, selection of fans, heat exchangers and other components commonly used in industrial processes are covered.

MET 4801-4805

Special Projects
Prerequisite: Consent of the Department Chair
1 to 5 hours

Independent study on topics of mutual interest to faculty and students. Assignments depend upon the specific background of the student, equipment availability, software availability, etc. Projects require a proposal presentation, scheduling, implementation and both written and oral presentations of study results.

MET 4901-4905

Special Topics
Prerequisite: Consent of the Department Chair
1 to 5 hours

Special topics selected by the program. Offered on a demand basis.

Management

MGNT 2201

Introduction to Computer Applications
3-0-3

An introduction to word processing, spreadsheets, and database business applications using the personal computer. The course includes an introduction to the personal computer and operating systems.

MGNT 3105

Management and Organizational Behavior
3-0-3

This course integrates the study of management principles and practices with the study of human behavior within organizations. The focus will be upon translation of management and organizational behavior theory to practices which result in organizational effectiveness, efficiency, and human resources development.

MGNT 3125

Basic Business Finance
Prerequisite: ACCT 2101
3-0-3

An introductory course on financial analysis, budgeting, sources and uses of funds, management of assets, short and long run financial strategy and interpretation of financial data as these relate to the process of business decision-making.

MGNT 3135

Marketing Principles
3-0-3

A study of the theory and principles of marketing. Emphasis will be placed upon the concept of customer satisfaction. Topics to be covered include total quality management (TQM), innovation, product distribution, cooperative associations, advertising and salesmanship, and the development of brands and trademarks.

MGNT 3145

Legal Environment
3-0-3

An introduction to the legal system as it applies to commercial transactions and a study of the law of contracts and torts. Ethical issues in business will also be addressed.

MGNT 3155

Total Quality Management
Prerequisite: MGNT 3505 or equivalent course
3-0-3

This course focuses primarily on the concepts, principles, methodologies, and implementation of Total Quality Management and continuous improvement. Through a continuous campus improvement project and/or an external industry project, the student shall gain experience at the direct application of the course material.

MGNT 3160

Management Science
Prerequisite: MGNT 3505
3-0-3

A survey course of these analytical techniques available to the decision process. The student is introduced to modeling, linear programming, network models, decision making under uncertainty, deterministic inventory models, queuing models and simulation.

MGNT 3205

Management Information Systems
Prerequisite: MGNT 2201
3-0-3

This course examines the sources and uses of information in the operation of productive organizations. Emphasis will be placed on data sources, creation and management of data bases, and utilization of information technology.

MGNT 3505

Managerial Statistics
Prerequisite: MATH 1113
3-0-3

An introduction to the application of probability and statistics to business. Provides statistical techniques needed for managerial decision making. Course content includes descriptive statistics, statistical distribution, probability theory, and hypotheses testing.

MGNT 3901-3905

Special Topics
Prerequisite: Junior standing
1 to 5 hours

Special topics offered by the department on a demand basis.

MGNT 4075

Healthcare Management
3-0-3

This course emphasizes on essential management skills in the health care industry such as planning, organizing, directing, and controlling. This course addresses the supply chain of health care services involving physicians and health care organizations. Topics include health care finance, accounting, billing, budgeting, and theories of human resources management.

MGNT 4115

Human Resources Management
Prerequisite: MGNT 3105
3-0-3

The course introduces the technical and legal aspects of human resources management. Topics include: human resources planning, recruitment, selection, training and development, performance appraisal, compensation, labor relations, occupational health and safety , and the evaluation of human resources management programs.

MGNT 4125

Technology and Public Issues
Prerequisite: MGNT 3105
3-0-3

An examination of the impact of private enterprise decisions on the commonweal. Consideration will be given to various technology policy topics and ethical considerations in business decision-making.

MGNT 4135

Project Management
Prerequisite: MGNT 3105
3-0-3

This course will provide a comprehensive, balanced view, one which emphasizes both the behavioral and quantitative sides of project management. A study of the systems philosophy, systems development process, human organizations and behavior, methods and procedures, and managing systems will provide the background necessary for managers to "do" project management.

MGNT 4140

Management of Networks and Telecommunications
3-0-3

This course deals with the components of a telecommunications/data communication system for business. Concepts associated with the development of communication networks include network structures, local area networks, PC communications, voice/data integration, and wide area networks.

MGNT 4145

International Management
Prerequisites: Junior standing, ECON 1101, MGNT 3125, MGNT 3135
3-0-3

This course is designed to provide students with better understanding of the key issues, legal and socioeconomic environments, opportunities, challenges, and managerial processes that are unique to international business.

MGNT 4151

Production and Operations Management I
Prerequisites: MGNT 3105, MGNT 3505
3-0-3

A first course in production/operations management. Topics include productivity, competitiveness, strategy, product and service design, process selection, capacity planning, facility layout, design of work systems, and location planning.

MGNT 4152

Production and Operations Management II
Prerequisites: MGNT 3105, MGNT 3505
3-0-3

A second course in production/operations management. Topics include quality management, aggregate planning, inventory management, materials requirement planning, just-in-time systems, scheduling, and project management.

MGNT 4185

Technology Management
Prerequisite: MGNT 3105
3-0-3

This course focuses on the management of technologies within organizations. Specific topics include the management of innovation, technological development, research and development, the justification and strategic implications of new technologies, and the development of a technological strategy. The management of both manufacturing and information technologies will be emphasized.

MGNT 4195

Current Readings in Management of Technology and Operations
Prerequisite: MGNT 3105
3-0-3

This course will examine how technology impacts public issues. The content of the course will be based on the issues currently of concern and will range from ecology to health care to telecommunications.

MGNT 4595

Business Strategy
Prerequisites: Senior standing
3-0-3

An examination of the process of managing the total organization. Emphasizes innovations in structure, product, markets, and long-term organizational commitments as these relate to organizational success.

MGNT 4901- 4905

Special Topics
Prerequisite: Senior standing
1 to 5 hours

Special topics offered by the department on a demand basis.

Management Graduate

MGNT 5653

Financial Decision Making
3-0-3

Students are introduced to fundamental principles of accounting for economic events and the use of basic financial statements. The business finance component presents an overview of financial analysis, budgeting, asset management and financial strategy in business decision-making. Transition course for the undergraduate common professional core (CPC).Covers the concepts from ACCT 2101 and MGNT 3125.

MGNT 5773

Managerial Decision Making
3-0-3

Introduces the application of probability and statistics to business decision making; including descriptive statistics, probability, normal distribution, sampling, confidence intervals, hypothesis testing, and simple linear regression. The production/operations topics include productivity, competitiveness, strategy, product and service design, process selection, capacity planning, facility layout, work system design, and location planning. This course also introduces the student to the study of human behavior in organizations. It explores management and organizational behavioral practices which lead to human resource development and organizational effectiveness. Transition course for the CPC. Covers the concepts from MGNT 3105, MGNT 3505, and MGNT 4151.

MGNT 5873

Strategic Environment of Business
3-0-3

An overview of economic theory with an introduction to the impact of fiscal and monetary policies, and consumer and business decision-making. The marketing component explores buyer motivation, organizational and individual decision-making, changing buyer behavior, and market positioning and segmentation. The legal component introduces the fundamental legal and regulatory parameters that define, promote and limit business activities. Topics include constitutional law, torts, intellectual

property, contracts, business organizations, employment law, agency law and antitrust law. Transition course for the CPC. Covers the concepts from ECON 2101, MGNT 3135, and MGNT 3145.

MGNT 6001

Management Communications
3-0-3

Effective communication skills are essential for managers in high technology environments. This course will emphasize skill building in writing, oral presentations, interpersonal communication, and research.

MGNT 6005

Managerial Economics
Prerequisite: ECON 2101 and MGNT 3505 or equivalent
3-0-3

Managerial economics focuses heavily on applied microeconomics issues. At its core is a value maximizing objective for the firm. Included in the course work will be traditional topics associated with microeconomics. Analysis of demand, production, cost, market structure, pricing and capital budgeting.

MGNT 6015

Technology and Innovation Management
Prerequisite: MGNT 3105 or equivalent
3-0-3

This course emphasizes innovation and creativity, and evaluation and analysis of new technology. The objective is to learn how to evaluate new technologies (either hard or soft) in order to be able to determinate whether or not to make a significant investments in them.

MGNT 6020

R&D Management
Prerequisite: MGNT 6015
3-0-3

A systematic examination of product innovations ranging from planning and research to development and commercialization or implementation of new product technology. Topics include pertinent business policy and strategic management issues, the process of innovation, concepts and interconnections between product and process creativity management, technology transfer, and relevant marketing issues. Students will analyze cases and do a project.

MGNT 6025

Managing Professionals
Prerequisite: MGNT 3105 or equivalent
3-0-3

This course examines the working relationship between management and professional employees in high technology organizations. Using management theory as a foundation, the course emphasizes experiential learning in order to develop effective leadership and team building skills which students can apply immediately. Learning methods include case studies, team exercises, role playing, individual and group presentation, experiential and group discussions.

MGNT 6040

Current Readings in Management of Technology
3-0-3

This course will examine how technology impacts public issues. The content of the course will be based on the issues currently of concern and will range from ecology to health care to telecommunications.

MGNT 6050

Project Management
Prerequisites: MGNT 3105, MGNT 3505 or equivalent
3-0-3

A study of the project planning, organizing, control concepts and techniques. Coverage will include projects and specifications. Work Breakdown Structures (WBS), the Critical Path Method (CPM), the Program Evaluation and Review Technique (PERT), Gantt charting, and time/resource management.

MGNT 6055

Total Quality Management
Prerequisites: MGNT 3105 or equivalent
3-0-3

The concepts of TQM will develop leadership and interpersonal skills along with an understanding of planning and customer satisfaction, in addition to process analysis. The discussion will focus on quality and how to use project teams, such as selecting a project and choosing team members. Topics will be covered concerning setting up meetings and guidelines for productive meetings. Team aspects and team building and activities will also be discussed.

MGNT 6060

Entrepreneurship
Prerequisites: MGNT 3105, MGNT 3125, MGNT 3135 and MGNT 6005 or equivalent
3-0-3

This course addresses the management challenges associated with starting and successfully running a new venture. It provides students with an opportunity to apply the theories and tools that they have learned elsewhere in the curriculum to the venture creation process.

MGNT 6065

Issues in International Management
Prerequisites: MGNT 3105, MGNT 3125, MGNT 3135, MGNT 6005 or equivalent
3-0-3

This course deals with cultural, institutional, economic, and financial environments characteristic of international markets. It will focus on strategic and operational plans that managers must undertake in formulating international business activities.

MGNT 6070

Employment and Labor Relations
Prerequisite: MGNT 3105 or equivalent
3-0-3

This course will cover employment practices and employment law in unionized and non-unionized settings. The focus will be on decision making and administrative issues for managers.

MGNT 6090

Strategic Management
Prerequisites: MGNT CPC covered in 5000-level transition courses; MGNT 6001, instructor approval
3-0-3

This capstone course exposes the student to the process of strategic decision-making. Emphasis is placed on the use of various tools for strategic analyses in development of the strategic plan and the

determination of the long-term character of the enterprise. Cases will be analyzed, and classroom presentations will be made by distinguished industrial executives and leaders.

MGNT 6901-6903

Special Topics
Prerequisites: as determined by the instructor and Department Chair
1 to 3 hours

Special topics selected by the Department Chair. Offered on a demand basis. A student may repeat this course with special permission.

MGNT 7501-7503

Independent Research
Prerequisite: MGNT 3105 or equivalent
1 to 3 hours

Course covers special topics of interest to the students. Course credit and topic are arranged between instructor and student.

Management Information Systems

MIS 3500

Database Applications
Prerequisite: MGNT 2201
3-0-3

This course provides an understanding of database analysis, design, and implementation in the end-user computing environment. The focus is on issues and principles of managing organizational data. Students will get extensive experience in developing data models, creating databases, and formulating and executing queries and reports.

MIS 4100

Business Systems Analysis and Design
Prerequisite: CS 1113 or equivalent programming experience
3-0-3

This course provides practice in structured analysis and design of business processes with emphasis on the development of business applications. Methods of system documentation are examined through use of tools and techniques for describing process flows, data flows, files, input/outputs and program specifications.

Management Information Systems Graduate

MIS 6010

Management of Information Technology
3-0-3

A comprehensive study of the application of information technology within organizations. Includes focus on data generation, retrieval, analysis, and utilization in managing and decision-making activities.

MIS 6020

Analysis and Logical Design
Prerequisite: MIS 6010
3-0-3

This course provides an understanding of the system development and modification process. It enables students to evaluate and choose a system development methodology. It emphasizes the factors for effective communication and integration with users and user systems. It encourages interpersonal skill development with clients, users, team members, and others associated with development, operation and maintenance of the system. Topics will include project oriented analysis, design, and use of data modeling tools.

MIS 6030

Physical Design and Implementation with DBMS
Prerequisite: MIS 6020
3-0-3

This course covers information systems design and implementation within a database management system environment. Students will demonstrate their mastery of the design process acquired in earlier courses by designing and constructing a physical system using database software to implement the logical design.

MIS 6040

Physical Design and Implementation within a Programming Environment
Prerequisite: MIS 6020
3-0-3

This course covers physical design, programming, testing and implementation of the system. Implementations of object-oriented, client-server designs using a programming environment.

MIS 6050

Project Management and Practice
Prerequisites: MGNT 3105 and MGNT 3505 or equivalent
3-0-3

This course covers the factors necessary for successful management of system development or enhancement projects. Both technical and behavioral aspects of project management are discussed. The focus is on management of development for enterprise-level systems.

Marketing

MKTG 3210

Professional Selling
Prerequisite: MGNT 3135
3-0-3

A critical examination of the challenges and opportunities provided by professional selling. Selling concepts, tools, strategies and tactics will be discussed, observed and practiced. Students are exposed to and experience some of the problems faced and rewards earned by those in professional sales.

MKTG 3224

Business Marketing
Prerequisite: MGNT 3135
3-0-3

In recent years, the role of marketing within corporate business has become more widespread and defined. With global markets has come increased competition that requires attunement to customer needs and demands in order to survive. This course focuses on the expanded contemporary marketing strategies that are essential for today's business graduate, who intends to serve the needs of organizations rather than households. Emphasis will be placed on case studies, group presentations, and class interactions.

MKTG 3228

Market Research
Prerequisite: MGNT 3505
3-0-3

The purpose of marketing research is to generate information to improve decision making. This course focuses on determining when research should be conducted and designing the appropriate means for

gathering and interpreting information. The course examines issues from the perspective of both the manager and the researcher by relying on extensive readings, cases, and assignments.

MKTG 4100

Marketing Management
Prerequisite: MGNT 3135
3-0-3

The marketplace has been transformed from a historical production domination to a consumer driven catalyst based on abundant supplies of products and services and the emergence of a world marketplace. This transformation has created the need for managers to understand the mechanisms that drive production and consumption; a process referred to as "marketing." This course will deliver the logic and common sense associated with sound marketing management principles under changing global conditions.

Marketing Graduate

MKTG 6010

Marketing Management
Prerequisite: MGNT 3135 or equivalent
3-0-3

In this course students learn to recognize and understand the mechanisms that drive production and consumption - commonly referred to as "marketing." This course will deliver the logic and common sense associated with sound marketing management principles under changing global conditions. The student will learn to understand events occurring in today’s dynamic global marketplace as well as to apply these marketing principles to specific managerial environments.

MKTG 6012

Sales Management
Prerequisite: MGNT 3135 or equivalent
3-0-3

Sales management will highlight the differences in responsibilities experienced by a sales manager from those of a manager geographically located with his or her subordinates. A study of the "arms length" supervision requirements of sales management and the key role of motivation will better equip students to manage any group in a business environment. Emphasis is also placed on hiring skills because much of a sales manager’s effort is devoted to maintaining and expanding a sales force.

MKTG 6024

Business-to-Business Marketing
Prerequisite: MGNT 3135 or equivalent
3-0-3

This course in business-to-business marketing builds a foundation for the student to better understand all of the underlying conditions that govern an industrial marketing transaction beyond simply analyzing the product that is being sought. The role of technology and its importance in the development of industrial products is explored along with the critical role of services and their interrelation to the products with which they are connected.

MKTG 6028

Marketing Research
Prerequisite: MGNT 3505 or equivalent
3-0-3

Marketing Research enables the student to actually conduct an opinion research project to better understand the underpinnings of a successful marketplace query. Actual business survey opportunities are sought so that the student gains "hands-on" experience in questionnaire design, data gathering and analysis. The student teams then prepare both a written and oral presentations of the results to experience the relationship between researcher and management in the gathering and communication of research information. The statistics prerequisite enables the student of effectively utilize SPSS for windows to manipulate the gathered data and disseminate it into meaningful decisions.

Modern Foreign Language

MFLA 1901-1903

Special Topics
1 to 3 hours

A course for individualized instruction of modern foreign languages.

MFLA 2901-2903

Special Topics
1 to 3 hours

A course for special study of modern foreign language or literature, above 1000 level.

Operations Management Graduate

OPSM 6005

Service and Production Operations Management I
Prerequisite: MGNT 4151 or equivalent
3-0-3

A survey of service and production management. Topics include productivity, forecasting, competitiveness, operations strategy, product and service design, process design selection, capacity planning, facility layout, design of work systems, and location planning.

OPSM 6006

Service and Production Operations Management II
Prerequisites: MGNT 4151 or equivalent, OPSM 6005
3-0-3

This course is a continuation of OPSM 6005. Topics include aggregate planning, inventory management, quality assurance, materials requirement planning, shop floor management, scheduling, performance measurement, Just-in-Time, synchronous operations, and global enterprise operations.

OPSM 6025

Purchasing Management
Prerequisites: MGNT 3145, MGNT 4151 or equivalent
3-0-3

Study of the activities, responsibilities, relationships and system involved in the purchase of materials, services and capital equipment. Topics include identifying requirements; evaluating and selecting "best value" vendors; techniques for planning and executing the purchasing function, including fundamentals of negotiating, ethical and legal aspects of purchasing; interactions with the engineering, quality, manufacturing, materials management, transportation and legal functions and with suppliers; and international aspects of purchasing. Purchasing responsibility for quality, delivery, inventory, price and contribution to profit are also covered.

Physics

PHYS 1111K

Introductory Physics I
Prerequisite: MATH 1113
3-3-4

An introductory course which will include material from mechanics, thermodynamics, and waves. Elementary algebra and trigonometry will be used. Laboratory exercises supplement classroom work.

PHYS 1112K

Introductory Physics II
Prerequisite: PHYS 1111K or PHYS 2211K
3-2-4

An introductory course which will include material from electromagnetism, optics, and modern physics. Elementary algebra and trigonometry will be used. Laboratory exercises supplement classroom work.

PHYS 2211K

Principles of Physics I
Prerequisite: MATH 2253
3-3-4

An introductory course which will include material from mechanics, thermodynamics, and waves. Elementary differential calculus will be used. Laboratory exercises supplement classroom work. This course may be substituted for PHYS 1111K in any curriculum, but credit will not be allowed for both PHYS 1111K and PHYS 2211K.

PHYS 2212K

Principles of Physics II
Prerequisites: MATH 2254, PHYS 2211K
3-2-4

An introductory course which will include material from electromagnetism, optics, and modern physics. Elementary differential and integral calculus will be used. Laboratory exercises supplement classroom work. This course may be substituted in any curriculum for PHYS 1112K, but credit will not be allowed for both PHYS 1112K and PHYS 2212K.

PHYS 3210

Intermediate Mechanics
Prerequisites: MATH 2306, PHYS 2211K
4-0-4

A survey of Newtonian dynamics of particles and systems of particles, including Lagrange's equations, central force systems, and the theory of small vibrations.

PHYS 3220

Electromagnetism I
Prerequisites: MATH 2255, PHYS 2212K
3-0-3

A survey of fundamental principles of electricity and magnetism, including electrostatic fields, magnetic fields of steady currents, and time-dependent electromagnetic fields.

PHYS 3410K

Electronics Laboratory
Prerequisite: PHYS 2212K
1-3-2

A study of discrete and integrated circuits that are commonly found in the physics laboratory.

PHYS 3500K

Introduction to Computational Physics
Prerequisite: PHYS 2212K
1-3-2

An introduction to computational physics problem solving, primarily using Windows-based MathCad but also including an introduction to Maple. Topics include equation solving, the use of vectors and matrices, 2-D and 3-D graphics, differential equation solving, simple programming, and the analysis and simulation of physical processes. Both numeric and symbolic methods are covered.

PHYS 3710

Modern Physics
Prerequisite: PHYS 1112K or PHYS 2212K
4-0-4

An introduction to the concepts and calculations involved in understanding the structure of matter and the world of the quantum. Topics include the Planck theory of radiation, particle/wave duality, Schrodinger equation solutions for simple potentials, and properties of the one-electron atom. Applications of quantum principles to atomic, molecular, and nuclear structure are also considered as time permits.

PHYS 3720L

Modern Physics Laboratory
Prerequisite: PHYS 3710 or concurrently
0-3-1

A selection of experiments from Modern Physics that complement the material in PHYS 3710, Modern Physics.

PHYS 3730

Relativity
Prerequisite: PHYS 1112K or PHYS 2212K
2-0-2

A thorough exposition of the principles of Special Relativity and an introduction to the General Theory of Relativity.

PHYS 3901-3905

Special Topics
Prerequisite: Junior standing
1 to 5 hours

Special topics selected by the department. Offered on a demand basis.

PHYS 4210

Quantum Physics
Prerequisite: PHYS 3710
4-0-4

A systematic development of quantum mechanical laws, emphasizing solutions to Schrodinger's equation.

PHYS 4220

Electromagnetism II
Prerequisite: PHYS 3220
3-0-3

A study of electromagnetic fields in matter, and of electromagnetic waves and their propagation. Emphasis will be given to calculational techniques.

PHYS 4230

Thermal Physics
Prerequisite: PHYS 2212K
4-0-4

A study of the principles of thermal equilibrium, physical statistics, irreversible processes, and the approach to equilibrium.

PHYS 4240

Solid State Physics
Prerequisite: PHYS 3710
3-0-3

Application of quantum mechanics to molecules and solids including such topics as molecular bonding, spectra of diatomic molecules, binding forces and bonding theory in solids, and application to solid state devices.

PHYS 4410K

Advanced Measurements Laboratory
Prerequisite: PHYS 3410K
1-3-2

An introduction to instrument control, data acquisition, and data analysis of the type used in research labs. The student w ill then incorporate these techniques in the design of experiments important to

classical and/or contemporary physics. This course will be writing intensive and will require extensive formal reports.

PHYS 4430

Capstone Physics Project
Prerequisite: Approved petition for graduation
1-0-1

Students will complete a capstone physics project during the last year on campus. The content and subject of this project will be negotiated between the student and the faculty supervisor of the project.

PHYS 4901-4905

Special Topics
Prerequisite: PHYS 1112K or PHYS 2212K
1 to 5 hours

Special topics selected by the department. Offered on a demand basis.

Political Science

POLS 3201

Constitutional and International Law
3-0-3

This course provides students with an in-depth discussion and case history of the origins, development, and evolution of the U.S. Constitution, focusing in particular upon such themes as separation of powers, federalism, private property rights, civil rights and civil liberties, as well as the important role that organized interests have played in shaping the meaning of the constitutional rights. In addition, the course will examine some of these themes in the background of the growing (and often contradictory) body of international legal principles developed by a variety if international governmental organizations.

POLS 3301

Modern Political Theory
3-0-3

An examination of the most important theorists, political philosophies, and ideologies from the seventeenth century to the present. The course discusses the role and nature of the individual, the relationship between the individual and the group, the characteristics of political authority (its source and its limits), the goals and mechanics of economic organization, as well as the issue of material and economic equality as it relates to individual freedom.

POLS 3401

Regulatory and Environmental Law
3-0-3

A study of trends in American regulatory policy, including the developmental, regulatory, and "new regulation" phases of business-government relations; comparisons between American regulatory policies and those of other nations; a discussion of the economic, social, cultural, and political forces that have shaped regulatory policy and environmental law; contemporary issues in environmental regulation; comparisons between American environmental policies and those of other nations.

POLS 3501

Intellectual Property Issues
3-0-3

A survey of federal patent, trademark, and copyright laws, including the current efforts to harmonize U.S. and foreign intellectual property law in response to the emerging global marketplace.

Psychology

PSYC 1101

Introduction to General Psychology
3-0-3

An introduction to the methods, theories, and research findings in psychology. The course examines the influence of biological, cognitive, and social factors on behavior.

PSYC 3101

International Social Psychology
3-0-3

Required of all International Studies majors, this course will examine the influence of biological, cognitive and social factors on behavior in cross-national contexts.

PSYC 3901-3903

Special Topics
Prerequisite: Consent of the department head
1 to 3 hours

Special topics in psychology. Offered by the department on a demand basis.

Quality Assurance

QA 6600

Methods of Analysis
3-0-3

A study of the analytic processes required to identify, document, define, and measure requirements and limitations for any operating system. Class work will focus on identifying, describing, and measuring existing manufacturing and service systems. Methods available for system improvement will be investigated.

QA 6602

Total Quality

3-0-3

A study of the functions and responsibilities of the quality organization. TQM concepts, quality function deployment, and the tools for continuous improvement are analyzed for sequence of use and application. Emphasis is placed on design and performance aspects of a system wide quality assurance function.

QA 6610

Statistics for Quality Assurance
3-0-3

Descriptive statistics for discrete and continuous variables, probability distributions, confidence intervals and hypothesis testing, elementary control charts for variables and attributes, the design of acceptance sampling plans, analysis of variance, and regression and correlation analysis.

QA 6611

Advanced Statistical Applications
Prerequisite: A course in statistics, such as MATH 2260 or QA 6610
3-0-3

The application of advanced statistical methodologies to the analysis and solution of quality and management problems, including probability theory, control charts, sampling, regression analysis, and design of experiments. The focus is on statistical process control and related quality technologies.

QA 6612

Advanced Experimental Design
Prerequisite: QA 6611
3-0-3

Analysis of statistical experimental design strategies, and planning of experiments for the best strategy and objectives. The use of existing computer applications packages will be stressed.

QA 6615

Applied Systems Reliability
Prerequisite: QA 6612
3-0-3

Analysis of appropriate probabilistic models for system reliability, including the exponential, Weibull, normal, and lognormal distributions, life prediction techniques, reliability test program plans, failure mode and effect analysis, Markov models, and maintainability concepts.

QA 6620

Inspection Systems Design
Prerequisite: QA 6610
3-0-3

Understanding inspection systems, measurement principles, and limitations. Included are acceptance sampling plans such as ANSI Z1.4, ANSI Z1.9, Dodge Romig, and stipulated risk, chain, sequential, and continuous plans.

QA 6630

Technical Training Methods
3-0-3

Adult learning theory, the development and management of training programs, presentation techniques, instructional aids, and assessment will be investigated.

QA 6640

Quality Cost and Supplier Evaluation
Prerequisite: QA 6602

3-0-3

A detailed analysis of cost reductions involved in continuous improvement. Supplier evaluation, including quality audits, is reviewed to establish capability. The concept of partnerships is explored.

QA 6650

Quality Systems Design
Prerequisite: QA 6602
3-0-3

The development of the quality organization, systems, and procedures necessary for effective participation in world markets. Creating and documenting methods and procedures are stressed.

QA 6660

Six Sigma Black Belt Concepts
Prerequisite: QA 6602 or QA 6612
3-0-3

A study and review of the Six Sigma Black Belt body of knowledge, including the DMAIC Methodology, Enterprise – wide deployment, project management, the lean enterprise and design for Six Sigma.

QA 6712

Quality Systems Simulation
Prerequisite: QA 6611
3-0-3

The application of simulation to quality systems. Topics covered include fundamental simulation modeling techniques, random sampling procedures and methods of estimating performance measures from simulation outputs. Emphasis will be upon hands - on simulation of various quality systems using PC based simulation languages.

QA 6722

Human Factors in Quality Assurance
Prerequisite: QA 6600 or QA 6602
3-0-3

A comprehensive survey of human factors theory, research, and applications which are of particular relevance to quality assurance. Emphasis will be placed on operator constraints in the design of work processes, workplaces, and instrumentation.

QA 6763

Software Quality
3-0-3

The Personal Software Process (PSP) is a technology that brings discipline to the practices of individual software engineers, dramatically improving the quality, predictability, and cycle time for software-intensive systems. PSP makes engineers aware of the processes they use to do their work and the performance of those processes. The course covers quality assessment, cost estimation, configuration management, software performance measures, proof of correctness, validation and verification, and management of the total quality environment for software.

QA 6901-6903

Special Topics in Quality
1 to 3 hours

Students may arrange to study and perform independent research on a topic approved by a graduate faculty member. An appropriate research paper will be required and the student may be required to make an oral presentation to faculty, graduate students, and/or quality professionals.

QA 7403

Graduate Seminar
Prerequisites: QA 6602, QA 6611 or consent of the department head
3-0-3

The course is designed to cover various topics within the field of quality assurance which are not taught in other courses. These topics might include acceptance sampling, risk analysis, regression analysis, SPC training methods, and others. This course may be used in lieu of QA 7503 or QA 7603.

QA 7503

Research in Quality
Prerequisites: QA 6602, QA 6611 or consent of the department head
3-0-3

This course is designed to guide the student in a thorough and in-depth written examination of one or more topics relevant to the application of quality assurance. Emphasis is placed upon students using both traditional and electronic means to perform the research.

QA 7603

Applications in Quality
3-0-3

This course is designed to guide the students through a thorough and in-depth application of quality principles in the workplace environment. Emphasis will be on the application of the principles and measurable outcomes.

Regents’ Remedial Courses

RGTR 0198
Reading for the Regents' Test
(Institutional Credit Only)
3-0-3

Prepares the student for taking the Reading component of the Regents' Test by providing simulated experience in the test-taking situations. Covers general test-taking strategies, reading strategies, and strategies for controlling test anxiety.

RGTE 0199
Writing for the Regents' Test
(Institutional Credit Only)
3-0-3

Prepares students for taking the Writing component of the Regents' Test by providing instruction in such skills as grammar, usage, and mechanics through the writing of practice essays.

Religion

RELG 1200
World Religion
3-0-3

Survey of world religions including Hinduism, Buddhism, Islam, Judaism, and Christianity. Attention will be paid to historical development, basic tenets, and impact on culture.

Social and International Studies

SIS 2100
Introduction to Quantitative Research Methods
3-0-3

This course will provide students with an introduction to basic research design, survey construction, various sampling methodologies, as well as differing statistical analysis approaches.

SIS 2101
Comparative Politics
3-0-3

Provides a generalized overview of the political systems and policymaking processes in several important countries. Included are country case studies from both the developed and developing worlds, as well as communist and post-communist realms.

SIS 2901-2903

Special Topics in Studies Abroad
1 to 3 hours

Special topics or projects for students participating in a studies abroad program. Offered by the department on a demand basis.

SIS 3100

Contemporary World Politics
Prerequisite: HIST 1013 or consent of the department head
3-0-3

Examines existing world trouble spots through an analysis of their historical backgrounds and the current international system. Students will devise their own policy analyses and recommendations for resolving various conflicts of international interest.

SIS 3600

Comparative Culture
Prerequisite: Proficiency in second language or consent of the department head
3-0-3

Compares cultures of the Pacific Rim, the Americas, the Middle East, Europe, and Africa with that of the United States with the purpose of diminishing cultural conflict. Includes life-issues of a culture: ceremonies and customs of birth, death, marriage, dating, meals, body language, etc. Lab simulations provide students with experience in dealing with culturally-conflictive situations.

SIS 3800

Contemporary World History since 1945
3-0-3

A topical survey of world historical developments since the end of the Second World War. This course will deal with the birth and death of the Cold War, decolonization, north/south rivalry, ethnic and cultural conflict, nuclear proliferation, trends in international trade, technological transfer and development, the rise of the Pacific Rim, and conflict in the Middle East, and international relations since the end of the Cold War.

SIS 3901-3903

Special Topics in International Studies
1 to 3 hours

Special topics in international issues. Offered by the department on a demand basis.

SIS 4000

Regional Studies/General
3-0-3

Focuses on the political, economic, and social forces within a particular region or regions of the world to be designated by the instructor. A significant study abroad experience (e.g. a semester or more) may substitute for this course with Social and International Studies department approval.

SIS 4001

Regional Studies/Latin America
3-0-3

Focuses on the political, economic, and social forces within Latin America.

SIS 4002

Regional Studies/Asia: China
3-0-3

Focuses on the political, economic, and social forces within China.

SIS 4003

Regional Studies/Asia: Japan
3-0-3

Focuses on the political, economic, and social forces within Japan.

SIS 4004

Regional Studies/Middle East
3-0-3

Focuses on the political, economic, and social forces within the Middle East.

SIS 4005

Regional Studies/Russia/Central Europe
3-0-3

Focuses on the political, economic, and social forces within Russia and/or Central Europe.

SIS 4006

Regional Studies/Western Europe
3-0-3

Focuses on the political, economic, and social forces within Western Europe.

SIS 4007

Regional Studies/Africa
3-0-3

Focuses on the political, economic, and social forces within Africa.

SIS 4100

Cross-National Technology Policy Analysis
Prerequisite: Completion of core Area E, group 2 or group 4 or permission of the instructor
3-0-3

In a comparative context, the course explores the role of public, as well as private, institutions in the formulation of technology policies and regulatory frameworks. Also examines international law to address trans-national issues in technology policy. The course relies heavily upon case studies.

SIS 4600

Global Technology Internship
Prerequisite: Junior status
3-0-3

Students may choose to undertake a semester-long internship for academic credit with an Atlanta-area employer. The employer may be a multi-national corporation or one that conducts significant business dealings in foreign markets.

Social Science

SOCS 3901-3903
Special Topics
Prerequisite: Consent of the department head
1 to 3 hours

Special topics in social sciences. Offered by the department at its discretion.

Spanish

SPAN 1001
Elementary Spanish I
3-0-3

Introduction to listening, speaking, reading, and writing in Spanish and to the culture of Spanish speaking regions. Not open to native speakers of Spanish.

SPAN 1002
Elementary Spanish II
Prerequisite: SPAN 1001 or one year of high school Spanish
3-0-3

Continued listening, speaking, reading, and writing, in Spanish with further study of the culture of Spanish speaking regions. Not open to native speakers of Spanish.

SPAN 2001
Intermediate Spanish I
Prerequisite: SPAN 1002 or equivalent
3-0-3

A continuation of skills development of comprehension, speaking, reading of general and technical texts, writing, grammar and an introduction to Hispanic cultures. Not open to native speakers of Spanish.

SPAN 2002
Intermediate Spanish II
Prerequisite: SPAN 2001 or equivalent
3-0-3

A continuation of SPAN 2001. Not open to native speakers of Spanish.

SPAN 3001

Applied Conversation
Prerequisite: SPAN 2002 or equivalent.
3-0-3

Development of oral fluency and listening comprehension in Spanish through linguistic and culturally appropriate activities. Expansion of general, business, scientific and technical vocabulary, among others. Not open to native speakers of Spanish.

SPAN 3002

Grammar and Composition
Prerequisite: SPAN 2002 or equivalent
3-0-3

Review of Spanish grammar. Practical writing practice in Spanish of personal and commercial correspondence, general and technical reports, and other forms.

SPAN 3003

Hispanic Cultures and Civilizations
Prerequisite: SPAN 2002 or equivalent, but SPAN 3001 and 3002 recommended
3-0-3

A background for technical and international trade purposes. The social values, institutions, customs and historical/cultural movements. Readings, writings, and discussions in Spanish.

SPAN 3901-3905

Special Topics
Prerequisite: SPAN 2002 or equivalent, but SPAN 3001 and 3002 recommended
1-5 hours

Arranged through agreement with and permission of instructor. This might include an internship abroad, Spanish for business, science and technology, management, or other topics. Readings, writings, and discussions in Spanish.

SPAN4001

Professional Spanish
Prerequisites: Nine semester hours minimum of Spanish on the 3000 level.
3-0-3

An advanced level course in written and spoken Spanish common to the Hispanic world of the workplace, business, technology, and other professions, including simulations, writing reports, and cross-cultural references, among other topics.

SPAN4002

Techniques in Translation for Professional Spanish
Prerequisites: Nine semester hours minimum of Spanish on the 3000 level.
3-0-3

An advanced level course in the techniques of translation from Spanish to English of texts including business, technological, scientific, legal, medical, and other fields.

SPAN4901-4905

Special Topics for Professional Spanish
Prerequisites: Nine hours minimum of Spanish on the 3000 level, and prior agreement with faculty of Spanish.
1-5 hours

A repeatable course that may be used for study abroad on the advanced level.

Speech

SPCH 2400

Public Speaking
2-0-2

A general course in public speaking designed for students with limited experience. This course deals with all aspects of effective planning, preparation, and presentation of different types of speeches. It focuses on basic principles of speech rather than on professional presentations.

Science, Technology, Society

STS 2400

Science, Technology, and Society
Prerequisites: ENGL 1101
2-0-2

An interdisciplinary course exploring the development and integration, both historical and contemporary, of science, technology, and society. The course seeks to help students better understand the world in which they live, the broader implications of their major course of study, and the complex social, ethical, and moral choices presented by modern science and technology.

STS 4000

International Issues in Science and Technology
Prerequisite: ENGL 1101
3-0-3

Examines the technical, social and moral issues raised by current international advances in science and technology. Places emphasis on comparative studies by examining a series of topics, each from the perspectives of a variety of nations.

STS 4400

Topical Studies in Science and Technology
Prerequisite: ENGL 1101
3-0-3

Examines the technical, social and moral issues raised by a particular issue of current concern in international science and technology. Students develop technical understanding, historical perspective and current events literacy relevant to the topic explored in a given term.

STS 4800

Global Technology Seminar
Prerequisite: Completion of international studies upper division core and senior status OR permission of the instructor
3-0-3

This seminar course serves as the capstone course for the student majoring in International Studies: Global Technology. Students will research and complete a self -directed project in which they will integrate the interdisciplinary aspects of their program, while demonstrating their grasp of technology issues within the international context, as well as their mastery over their specific area of specialization.

Software Engineering

SWE 1301

Software Development I
Prerequisite: CS 1002 and Math 1113 or concurrently
3-2-4

This course provides an introduction to software development with a focus on structured programming. Topics include an overview of programming, problem-solving and algorithm development, simple data types, arithmetic and logical operators, selection and repetition structures, text files, arrays, procedural abstraction and software design, and modular programming including subprograms. Programming assignments focus on the techniques of good programming style and how to design, code, debug, and document programs. The student will be able to solve problems using top-down design and modularize their solutions with proper use of abstraction mechanisms.

SWE 1302

Software Development II
Prerequisite: SWE 1301 and CS 1002
3-2-4

This second course in software development provides a focus on both abstraction and advanced programming techniques of object-oriented programming. Topics include abstract data types, multidimensional arrays and records, recursion, pointers and linked lists, use of parameterized types, software engineering concepts, and introduction to the usage of dynamic data structures (stacks, queues, and trees) to solve application problems. The student will be able to solve problems using objects, including designing and writing their own. Programming assignments emphasize good software development principles such as information hiding, re-use, use of symbolic debuggers, and separate compilation.

SWE 2313

Introduction to Software Engineering
Prerequisite: SWE 1302 or CS 1302
3-0-3

This course provides an overview of the software engineering discipline, introducing the student to the fundamental principles and methods of software engineering. This course highlights the need for an engineering approach to software. The course presents software development processes at the various degrees of granularity. This ranges from organizational processes to team and individual engineer's processes. The role of standards (i.e., IEEE) is illustrated. CS majors may not receive degree credit for this course.

SWE 2642

Professional Practices and Ethics
Prerequisite: CS 1002 and either CS 1302 or SWE 1302 or IT 1124
2-0-2

This course covers the historical, social and economic consideration of the discipline. It includes studies of professional conduct, risks, and liabilities, and intellectual property relative to the software engineering and computing professions. Software engineering/computing case studies will be used.

SWE 2623

Software Systems Requirements
Prerequisite: SWE 2313 and MATH 2345
3-0-3

This course covers engineering activities related to the definition and representation of software system requirements. Topics include the elicitation, analysis, specification and validation of software system requirements. Emphasis is on the application of processes and techniques of requirements engineering. Projects focus on current analysis methods and supporting tools for specification, organization, change management, traceability, prototyping, and validating requirements.

SWE 3633

Software Architecture & Design
Prerequisites: SWE 2623 and CS 3424
3-0-3

This course covers the fundamental design principles and strategy for software architecture and design. Architectural styles, quality attributes, notations and documents, reference architecture, domain-specific architecture in architecture process and pattern-oriented design, component-oriented design, and interface design in detail design process are discussed.

SWE 3643

Software Testing and Quality Assurance
Prerequisite: (SWE 2623 & CS 3424) or (SWE 4624 for CS majors)
3-0-3

This course will show how software quality assurance and configuration management is performed and how software process improvement is maintained in order to assure the highest possible quality. Topics include software process metrics and their use in QA, testing approaches, methods and techniques. Development of QA plans, reviews, inspections and audits will be done. Configuration control boards and methods for software process improvement is discussed.

SWE 3683

Embedded Systems Analysis & Design
Prerequisite: CS 3243
3-0-3

The analysis and design course focuses on using modern methods, techniques, and tools for specification and design of embedded systems. Topics include analytical methods such as RMA, development methods such as HOOD, and notations like UML, Petri-nets, etc. are covered. Performance evaluation based on modeling and simulation techniques is also covered. This is a project based course.

SWE 3843

Embedded Systems Construction and Testing
Prerequisite: CS 3243
3-0-3

This course covers fundamental principles and techniques for embedded software engineering. It focuses on a component-based development approach to designing, implementing, and testing embedded programs. Topics include building standard-along and networked embedded systems, validation and verification of trustworthy embedded software, testing tools and environment, quality assurance and metrics for embedded systems, and hardware/software co-design and co-testing.

SWE 4324

User-Centered Design
Prerequisite: SWE 1302 or CS 1302 or IT 1124
4-0-4

A course that presents the fundamental knowledge, processes, skills, and practices leading to the user-centered design of computer systems and applications. The course addresses the effectiveness of human interactions with computers by examining issues of physical ergonomics, cognition and perception, human memory and information processing, and evaluation of prototype software in a Usability Lab. Usability engineering techniques are covered leading to improved system effectiveness in supporting use of computers, user learning, diversity in interaction styles, and individual versus group work. Class exercises provide practice of needed skills. A major project that integrates all aspects of user-centered task-oriented design is included.

SWE 4353

Computer Game Design & Development
Prerequisite: CS 3424
3-0-3

Concepts and methods for the design and development of computer games. Topics include: history of games, graphics, multimedia, visualization, animation, game design, software engineering, interactive fiction, game development environments, and commercialization of game systems. Understanding the art and science of game design, the development of complex virtual reality stimulations, and the evaluation of human play environments are incorporated into the course.

SWE 4624

Software Engineering
Prerequisite: CS 3424
4-0-4

The entire software engineering life cycle is explored, with emphasis on the initial phases. Topics include problem definition, systems analysis, requirements gathering, cost and benefit analysis, proposal preparation, prototyping, design techniques and usability testing. Software engineering principles, practices, and design standards are examined through case studies. Various tools are used by students in conjunction with real-world projects. A major component is a team project which goes through prototyping and usability testing. SWE majors may not receive degree credit for this course.

SWE 4633

Component-Based Software Development
Prerequisite: SWE 3643
3-0-3

This course covers a wide range of component-based software development skills, from analyzing and modeling a problem with component-based notations and architectures, to implementing a solution using a particular component technology. The principles and methodologies in component based software development will be discussed in depth focusing on component-oriented programming and its related technologies. Component-based tools and languages, approaches for implementation of component-based software, including designing, building, assembling, and deploying reusable and COTS and in-house software components are discussed. Students will do projects focused on the life cycle of software components in various component technologies.

SWE 4663

Software Project Management
Prerequisite: SWE 3643
3-0-3

This course focuses on organizational and technical roles in software engineering. Models of software engineering life cycle, software maturity framework, strategies of implementing software, software process assessment, project planning principles and tools, software configuration management, managing software quality and usability, leadership principles and legal issues will be covered. A required team project combines technical and managerial techniques of software design and development.

SWE 4724

Software Engineering Project
Prerequisite: TCOM 2010 & SPCH 2400 & (SWE 3633 or SWE 4624)
4-0-4

This is the capstone project course and constitutes a major design experience. The course focus is on a team project comprising the development of a realistic software system during all phases of the software development life cycle. Topics include software project management, design, verification and validation, development, evolution and quality assurance. Current methods, techniques, and software tools are utilized in the development of the project.

SWE 4743

Object-Oriented Development
Prerequisite: CS 3424
3-0-3

This course involves engineering activities related to the analysis, design, and implementation of object-oriented software systems. Topics included modeling foundations, requirements specification and documentation, design concepts and strategies, and OOAD methodologies with an emphasis on UML. The course includes a major project utilizing current analysis and design methods and tools implemented in a contemporary IDE.

SWE 4783

User Interaction Engineering
Prerequisite: SWE 3633 or CS 3424
3-0-3

This course follows a complete software engineering cycle to produce software objects that support users in effective, efficient, and enjoyable interactions with computers. Class exercises and a project incorporate concepts and methods including ethnographic and user analysis; cognitive ergonomics; usability metrics and criteria; software engineering practices, conventions, standards, and documentation; device-user action mapping; person-system function allocation; quality management systems; conceptual prototyping; embedded systems in support of ubiquitous computing; and function-behavior analysis.

SWE 4901 – 4904

Special Topics
Prerequisite: As determined by the instructor and Department Chair
1 to 4 hours

Special Topics selected by the Department Chair. Offered on a demand basis. A student may repeat this course with special permission. Special topics may cover the state of the art of Software Engineering.

Software Engineering Graduate

SWE 6343

User Interface Design and Implementation
Prerequisite: SWE 6623
3-0-3

This course covers the major frameworks, methods, and approaches to designing, engineering, implementing, and testing user interfaces. It covers user and usability requirements gathering, task analysis, user-interface design, implementation of the user interface, and evaluation with respect to requirements and the users' tasks. Illustrative design and implementation projects are completed throughout the term.

SWE 6623

Software Engineering I
Prerequisite: CS 5123/3424
3-0-3

This course covers the initial phases of the software-development life cycle. Topics include planning, requirements analysis, requirements specification, and design. A number of techniques for performing analysis and design are explored and applied in a major project.

SWE 6633

Software Project Management
Prerequisites: SWE 6623
3-0-3

Focus on organizational and technical roles in software engineering. Emphasis on: models of software life cycle, software maturity framework, strategies of implementing software, software process assessment, project planning tools, software configuration management, managing software quality and usability, leadership principles, and professional and ethical issues. A required project combines technical and managerial techniques for assessing software design and development.

SWE 6723

Software Engineering II
Prerequisite: SWE 6623
3-0-3

This course covers the entire software development life-cycle. Emphasis is placed on advanced topics including prototyping, verification and validation, formal methods, and quality management. A major component is a group project that utilizes a Computer Assisted Software Engineering (CASE) tool to assist in the in the analysis, design, and implementation of a system.

SWE 6743

Object-Oriented Analysis and Design
Prerequisites: CS 5183/3663 and SWE 6623
3-0-3

This course explores the object-oriented software development process including analysis, design, and programming. Emphasis is on the object-oriented paradigm.

SWE 6753

Computer Game Design & Development
Prerequisite: CS 5123
3-0-3

Topics include graphics, multimedia, visualization, animation, virtual reality simulation concepts, methods, and tools of game design and developments using the software engineering life cycle are emphasized. A team project on a game prototype is required.

SWE 6763

Software Metrics and Quality Management
Prerequisite: SWE 6623
3-0-3

This course covers the principles of software measurement such as, scaling, validity, and reliability. The various software metrics on volume, effort, quality, and cost estimation are explored. The theory and principles of software verification and validation effectiveness, and reliability models are studied. The application of these measurements to software customer satisfaction and total quality management is explored.

SWE 6783

User Interaction Engineering
Prerequisites: CS 5183/3663 and SWE 6623
3-0-3

This course follows a complete software-engineering cycle to produce software objects (classes and/or components) that support users in effective, efficient, and enjoyable interactions with computers. Class exercises and a project incorporate concepts and methods including ethnographic and user analysis; cognitive ergonomics; usability metrics and criteria; software-engineering practices, conventions, standards, and documentation; device-user action mapping; person-system function allocation; quality management systems; conceptual prototyping; embedded systems in support of ubiquitous computing; and function-behavior analysis.

SWE 6813

Component Based Software Development
Prerequisites: CS 5123 and CS 5183
3-0-3

This course covers the concepts, foundations, and architectures of component-based software development (CBSD) and its related technologies. Component-based tools and languages, approaches for implementation of CBSD, including designing, building, assembling, and deploying reusable COTS and in-house software components are discussed in depth. The current concrete realizations of component technologies will be explored. Students will do projects focused on the life cycle of software components.

SWE 6823

Embedded Systems Analysis and Design
Prerequisite: SWE 6623
3-0-3

This project-oriented course focuses on using modern methods, techniques, and tools for specification and design of embedded systems. Topics include analytical methods, design/development methods, and notations. Performance evaluation based on modeling and simulation techniques is also covered.

SWE 6843

Embedded Systems Construction and Testing
Prerequisite: CS 5243/3243
3-0-3

This project-oriented course focuses on the use of current software building technology, testing, reliability analysis, and benchmarking. Topics include component-based development (CBD), implementation technologies, and real-time operating systems (RTOS), with emphasis on the use of measurement tools, and domain libraries. The course also covers issues in hardware software co-design.

SWE 6883

Formal Methods in Software Engineering
Prerequisites: CS 5423 and SWE 6623
3-0-3

This course involves a study of formal methods applicable to software development with an emphasis on methods that support formal specification and verification. Such methods may include transformational techniques, logic-based formalisms, algebraic and model-based specifications, tools, etc.

SWE 6901-6903

Special Topics
Prerequisite: As determined by the Instructor and Department Chair
1 to 3 hours

Special topics selected by the Department Chair. Offered on a demand basis. A student may repeat this course with special permission.

SWE 7803

Master's Thesis
3-0-3

The thesis is designed for students wanting a research focus to their degree. The student works independently under the supervision of a designated SWE graduate faculty member on a thesis of substance in software engineering. The student will generate a formal written thesis and give a final defense of the thesis. This course may be repeated, but only 6 hours may be applied toward the degree. This course will be an alternative to SWE 7903 Software Engineering Capstone.

SWE 7903

Software Engineering Capstone
Prerequisite: Satisfactory completion of the MSSWE core (SWE 6623, SWE 6633, SWE 6723, SWE 6743, SWE 6763, and SWE 6883)
3-0-3

This course is designed for students to give a professional focus to their degree. The students work in designated teams under the supervision of the course instructor (a CSE faculty member), on a project of practical significance in software engineering. Each of the teams will deliver a final working product, generate a substantial final report, and give a final presentation on the project. Special topics offered by the department on a demand basis.

Surveying and Mapping

SURV 2200

Construction Measurements
Prerequisite: MATH 1113
3-3-4

Use and care of engineers level, transit and tape; leveling, traversing, stadia, contours, horizontal and vertical field layouts for buildings; reading and interpretation of site survey maps. (No credit for CET or Surveying and Mapping majors.)

SURV 2221

Surveying I
Prerequisites: CET 2160, MATH 1113
3-3-4

Angles, distances, elevations; horizontal and vertical location using total station and level; simple horizontal and vertical curves; contouring; introduction to the Global Positioning System; introductory coordinate computations; simple topographic survey project.

SURV 2250

Applied Hydrology for Surveyors
Prerequisite: MATH 1111
4-0-4

Analysis of surface water runoff, rational method, TR 55 Method, pipe sizing, storm sewer design, curb and gutter design, and basic fluid mechanics application to subdivision design. This course is intended to prepare students for the Professional Land Surveyor Exam in the State of Georgia. (This course may not be used for credit by CET or Surveying and Mapping Majors.)

SURV 3222

Surveying II
Prerequisite: SURV 2221
3-3-4

Route geometry computations and field techniques; automated data collection and reduction for topographic surveys; coordinate computations for intersections; route design project.

SURV 3320

Photogrammetry and Remote Sensing
Prerequisite: SURV 3222
2-3-3

Analysis and interpretation of photographic and satellite imagery; vertical and orthography; ground control; project planning; digital softcopy methods.

SURV 3330

Construction Surveying
Prerequisite: SURV 3222
3-3-4

Layout of designed structures from land boundaries, right of way parcels, applications of coordinate geometry, hydrographic surveying.

SURV 3421

Geographic Information Systems I
Prerequisite: SURV 3222
3-3-4

GIS concepts; spatial data analysis; information systems; digital elevation models; surveying and mapping components of GIS development.

SURV 3901-3904

Special Topics
Prerequisites: Junior standing, consent of the department head
1 to 4 hours

Special topics offered by the department on a demand basis.

SURV 4410

Surveying Computations and Adjustments
Prerequisites: MATH 2260, SURV 3222
3-3-4

Advanced surveying computations; matrix algebra; computer methods; statistical analysis of error propagation; variance and covariance; least squares adjustments.

SURV 4412

Applied Geodesy
Prerequisite: SURV 3222
3-3-4

Figure of the earth; astronomy; geodesy; state plane coordinate computations; geodetic leveling; computer methods.

SURV 4413

Geodetic Positioning with GPS
Prerequisite: SURV 4412
3-3-4

Applications of geodesy using GPS; project planning; networks; field operations; data analysis; computer methods.

SURV 4415

Geodetic Surveying Methods
Prerequisite: SURV 3222
3-3-4

Topics in Geodetic Surveying Methods including traversing, leveling and GPS. Coordinate systems and projects are utilized.

SURV 4420

Remote Sensing
Prerequisite: SURV 3320
3-3-4

Remote sensing systems; ground truthing; mapping applications; satellite imagery integration into GIS.

SURV 4422

Geographic Information Systems II
Prerequisite: SURV 3421
3-3-4

Continuation of GIS I; data collection techniques; advanced systems and macro programming.

SURV 4423

Advanced Field Operations
Prerequisite: SURV 3222
2-6-4

Emphasis placed on production surveying; use of codes to develop maps; extensive data collection; computer drafting and plotting.

SURV 4465

Legal Aspects of Land Surveying
Prerequisite: SURV 3222
4-0-4

Cadastral systems; Georgia laws on surveying and property; boundary survey legal research; writing of legal descriptions; evidence evaluation; US Public Land System.

SURV 4470

Land Development Design
Prerequisites: CET 4444 or SURV 2250 and SURV 2221
3-3-4

Site analysis; subdivision design; drainage design; sewer design; legal requirements; platting; CAD computer methods.

SURV 4475

Land Surveying Practice
Prerequisite: SURV 4465
1-3-2

Legal research; boundary analysis; boundary survey project; office procedures; business practice.

SURV 4901-4904

Special Topics
Prerequisites: Senior standing, consent of the department head
1 to 4 hours

Systems Engineering

SYE 6005

Introduction to Systems Engineering
3-0-3

The goal is to introduce the student to the essential principles, processes, and practices associated with the application of Systems Engineering. The applicability and use of Process Standards will be examined. Emphasis will focus on defining the problem to be solved, establishing the initial system architecture, understanding the role of system life cycles, requirements development, and verification and validation of the realized system.

SYE 6010

Managing the Technical Effort Associated with System Creation
Prerequisite: SYE 6005
3-0-3

Technical management, its relationship with project and program management, elements of successful and less than successful technical management, and the elements that should be in place prior to commitment to system creation will be reviewed. The core of this course will examine three significant aspects of managing the technical effort: effective technical planning, assessment of technical progress, and control of technical activities.

SYE 6015

Systems Analysis and System Design
Prerequisite: SYE 6010
3-0-3

An examination of the current systems analysis and system design methods used to define system boundaries, constraints, and detailed technical requirements from acquirer needs and expectations. In addition, approaches to verification of the design solution, including verification methods against the specified requirements will be examined.

SYE 6020

System Architecture
Prerequisite: SYE 6015
3-0-3

Examination of concepts and techniques for architecting systems, the establishment of a bounded and integrated structure that provides a framework for system creation, work breakdown structures, cost analysis, and subcontractor control and interface will be reviewed. A structured approach to system architecture that proceeds from a topmost “system” to an aggregation and integration of systems created in lower level development layers, both internal and external to the developer as described in the standard ANSI/EIA-632 (Processes for Engineering a System) will be explored.

SYE 6025

Engineering Economic Analysis
3-0-3

Examination of the principles and methods used in evaluating costs associated with development and realization of engineering programs. This includes engineering cost estimating for determining engineering development and total life-cycle costs, application of cost-benefit analyses and cost-effectiveness analyses in the comparison of alternative design approaches, and an examination of various engineering costing concepts such as “design-to-cost”, “should cost”, and “cost as an independent variable”.

SYE 6030

Verification Program Development & Management
3-0-3

This course will review: the establishment of criteria for planning tests, the determination of test methods, subsystem and system test requirements, and development of formal test plans to demonstrate compliance. Also examined will be methods of developing detailed test procedures for specific test conduct and acceptance test procedures for evaluating supplier products. The preparation of effective test results documentation in a fair and accurate manner will be analyzed.

SYE 6035

Modeling and Simulation
3-0-3

The use of models and simulations to validate or predict expected performance, behavior, and interaction of selected design elements in a controlled environment will be examined. This course will also present

guidelines for selecting and using models and simulations on projects. Various modeling and simulation methods and tools will be examined and their value and applications probed for differing engineering development needs.

SYE 6040

Advanced Configuration Management
3-0-3

An examination of processes and methods to identify, control, audit, and track the evolution of system characteristics throughout the system life cycle will be conducted.

SYE 6045

Process Assessment and Improvement
3-0-3

This course provides an operational understanding of the differences between process standards and assessment standards where the latter provide a formal and structured means of examining a specific process or focus area to determine process capability or process maturity in an enterprise. Both EIA/IS-731-1, “Systems Engineering Capability Model”, and Capability Maturity Model® Integration (CMMISM) will be examined and the strengths and weaknesses reviewed with respect to consideration of use on projects.

SYE 6050

Reliability and Sustainability
3-0-3

Concepts for reliability and sustainability (maintainability) engineering and their integration into system development will be examined. In addition, techniques for ensuring the integration of these factors into core design decisions through specified requirements will be explored.

SYE 6055

System Development Workshop
3-0-3

This workshop will require students to attend a number of intensive 2-day, weekend workshops at SPSU’s Marietta campus. Students will be presented with an engineering problem statement constituting acquirer needs and expectations. Two competitive teams will be established and multi-disciplinary teamwork will be required to achieve a solution to the presented problem statement. The two student teams will demonstrate effectiveness (validation) in a head to head operational competition judged by SPSU and industry experienced representatives.

SYE 6060

Systems Engineering Workshop

3-0-3

This workshop will require students to attend a number of intensive 2-day, weekend workshops at SPSU's Marietta campus. The workshop engages the student with a variety of scenarios amenable to a systems engineering approach. Early activities will include systems synthesis and systems analysis following the problem definitions. Finer grain development then will be required utilizing applicable tools learned in preceding courses. Students will work in teams gaining experience in the dynamics and synergism that can be realized in systems efforts.

Technical and Professional Communication

TCOM 2000

Business Communication

Prerequisites: ENGL 1102, SPCH 2400

3-0-3

Introduction to the communication skills needed in the business world, learned through exposure to mock business situations. The job search is covered, and emphasis is placed on writing business correspondence and delivering business-related oral presentations.

TCOM 2010

Technical Writing

Prerequisite: ENGL 1102

3-0-3

Introduction to organization, style, and mechanics of technical and professional writing. Includes practice in writing such typical documents as technical descriptions, instructions, proposals, and recommendation reports. Emphasis placed on planning, organizing, and writing reports; designing visual aids; and editing. Among other assignments, at least one complete technical report is required.

TCOM 2020

Foundations of Technical Communication

Prerequisite: ENGL 1101

3-0-3

Introduction to technical communication through a survey of the field's evolution and current status; its theoretical foundations, key concerns and issues, core competencies and specializations, and the technologies and societal trends that will impact the work of technical communicators in the future. Emphasis is placed on developing a strong professional identity and in beginning the process of career planning.

TCOM 2030

Research in Technical Communication

Prerequisite: TCOM 2010

3-0-3

Introduction to research methods used by practitioners and scholars in technical communication. Students explore the relationship between theory and research and learn how to design and carry out empirical studies using both quantitative and qualitative methods. Emphasis is placed on the research methods used in workplace settings to design user-centered information products and to test their usefulness and usability.

TCOM 2040

Tools for Technical Communicators

Pre- or co-requisite: TCOM 2010

2-3-3

With hands-on instruction, self-paced tutorials, and real-world projects, this course teaches students how to learn and use popular software tools to create effectively structured workplace and academic documents. Software covered include such tools as Microsoft Word, PowerPoint, Adobe Acrobat, Adobe/PhotoShop/Elements, and HTML.

TCOM 2060

International Communication
Prerequisites: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Study of international cultural differences, especially as they influence oral and written communication in the workplace. Cultures will be analyzed using established models. Special topics will vary depending on faculty teaching the course. Required for B.A. in International Technical Communication.

TCOM 3010

Science Writing
Prerequisite: ENGL 1102
3-0-3

Examination of the types of writing produced in various scientific professions. Depending on the semester, possible topics may include one or more of the following: environmental writing, public policy documents, and other scientific documents.

TCOM 3015

Environmental Writing
Prerequisite: ENGL 1102
3-0-3

Close study of global and more localized environmental issues, including air, water, soil, biotic communities, and impact on and by humans. Students will read works on the relationship between technology, human population, and the environment and will write essays, give an oral report, and complete a research project on environmental topics.

TCOM 3020

Proposal Writing
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Theory and practice of writing proposals for business, industry, and non-profit organizations, with emphasis on in-house planning and external grant-seeking proposals. Course covers persuasion theory and strategies while leading students step-by-step through the proposal development process. Students develop skills in gathering and evaluating information, analyzing audiences, collaborating with peers and clients, building persuasive arguments, writing clearly and cogently, and designing visually effective documents.

TCOM 3030

Instructional Design
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Course introduces and applies systematic instructional design and instructor-led training. Students will study a major model of instructional design and apply it to develop and refine a unit of instruction. Students will prepare and deliver a training lesson, participate in team instructional design activities, and evaluate the training developed and presented by other students.

TCOM 3040

Writer's Workshop
Prerequisites: ENGL 1102
3-0-3

Course that gives students practice in writing for various audiences, purposes, and contexts. In addition to a workshop forum, this class provides an introduction to contemporary, practical theories of writing.

TCOM 3045

Fundamentals of Information Design
Prerequisite: TCOM 2010 and TCOM 2040 (first tools course)
3-0-3

Introduces students to the principles and best practices of effective information design for both print and electronic media. Includes such topics as information types, information categorization and hierarchies, types of organizational patterns, message and document genres, structural markup languages, structured information design and technologies, content management, and single sourcing.

TCOM 3050

Journalism
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Study of technical and scientific reporting, including mass media theory. Emphasis on making technical information understood by a general audience. Students practice many in-house and external forms of writing such as news releases, feature articles, bulletins, brochures, and pamphlets.

TCOM 3901-3903

Special Topics
Prerequisite: Consent of the department chair
1 to 3 hours

Special topics in communications. Offered by the program at its discretion.

TCOM 4000

Professional Editing
Prerequisites: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Development of skills in proofreading, copyediting, and comprehensive editing. This course addresses issues of style, content, organization, and visual design.

TCOM 4030

Foundations of Graphics
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

An introduction to the fundamental elements and principles of graphic design and application of these concepts to page design and layout. Study of elementary color theory. Introduction to production techniques and current software applications.

TCOM 4035

Fundamentals of Website Design
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Study of effective information design and delivery for websites. Covers principles and best practices for creating usable websites and teaches students fundamentals of HTML, use of HTML authoring tools, web page writing and editing, web graphics and multimedia elements, and website architectures and content management. Students work individually and in teams to design and develop websites. Some classroom instruction is provided in basic HTML and XHTML coding, the composition of cascading style sheets, and the use of DreamWeaver and FrontPage.

TCOM 4040

Advanced Tools for Technical Communicators
Pre- or co-requisite: TCOM 2010 and TCOM 2040
2-3-3

With hands-on instruction, self-paced tutorials, and real-world projects, this course teaches students how to learn and use specialized software applications to create effectively designed and formatted technical information and instructional documents. Case-problem approach requires that students solve real-world information problems by creating documents that communicate effectively both verbally and visually. Includes advanced software tools such as Adobe FrameMaker, Netscape Composer, NoteTab, RoboHelp HTML, Full Shot (screen capture), and Visio (or other diagramming program.

TCOM 4045

Foundations of Multimedia
Prerequisites: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

A study of the foundations of multimedia including theory, planning, scripting, storyboarding, and production. Students will submit research work on the theory of multimedia.

TCOM 4050

Advanced Graphics Tools for Technical Communicators
Pre- or co-requisite: TCOM 2010, TCOM 2040, and TCOM 4030
2-3-3

With hands-on instruction, self-paced tutorials, and real-world projects, this course teaches students how to use digital image editing tools to create and edit both raster and vector graphic images. Includes such software tools as PhotoShop and Illustrator.

TCOM 4070

User Documentation
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Introduction to the process and principles of writing manuals, with emphasis on user manuals. Students write and produce all or part of a manual. Course includes study of structured writing. Course also includes discussion of (1) production issues and (2) theory relevant to designing usable, readable manuals.

TCOM 4100

Small Group Communication
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Study of the theory and practice of group interaction and teamwork as it applies to group process. Focuses on such topics as the function of roles in groups, conflict resolution, leadership in the small group, gender differences, listening and negotiation skills, and managing meetings. A collaborative project and workshop activities reinforce these principles.

TCOM 4120

Usability Testing
Prerequisites: TCOM 2020, TCOM 2030, TCOM 4030
2-3-3

Study of the relevant research and practical application of usability testing as part of product development. Includes strategies for planning, conducting, and analyzing a test. Teams will perform tests and report results from an actual test in a usability lab.

TCOM 4130

Online Documentation
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Study of the design and development of effective online Help systems and web-based documentation. Presents principles of usable online information design, task-based user analysis, and advanced tools and technologies for developing and delivering online information products, including single-sourcing, SGML, and XML. Students design and develop an HTML Help system. Instruction will be provided in the use of RoboHelp and alternative HTML Help authoring tools. Students entering the course without basic HTML knowledge will be expected to learn the basics of HTML on their own.

TCOM 4160

Rhetoric: History, Theory, and Practice
Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently
3-0-3

Introduction to rhetoric as the relationship between thought and expression. Examines connections between rhetoric and writing, between a public act and a personal thinking process, by exploring classical and contemporary accounts of rhetorical history and theory. Students apply theory to their own writing as they explore the relationship between writers, readers, and subjects and the range of options they have available to them as communicators.

TCOM 4170

Video Production
Prerequisites: TCOM 2010, TCOM 4030; either TCOM 2020 or 2030 or concurrently
3-0-3

Introduction to the role and use of video production for technical and professional communication. Topics include scripts, storyboards, shot selection, continuity, lighting, sound, in-camera editing, and fundamental post-production techniques. Students will complete at least two assigned videos as individual or team projects. This course is double-listed for both undergraduate and graduate students. Graduate students will be required to complete additional work that emphasizes theory and research over application. Thus they must demonstrate a higher level of learning than undergraduates.

TCOM 4600

Independent Study
3-0-3

A directed study for an undergraduate student who wishes to pursue a special interest in technical and professional communication not covered in the curriculum. The student submits to the TCOM Undergraduate Program Coordinator a proposal that clearly defines the course of study and the benefits to be obtained. The proposal, which must be submitted at least one semester prior before taking the course, must be approved by the student's advisor and the TCOM faculty committee. Upon approval, the student is assigned a faculty advisor.

TCOM 4700

Internship
Prerequisite: Junior standing
3-0-3

An opportunity for students to apply principles and techniques of technical and professional communication in a specific organization. The student is responsible for finding an internship, but the program will help in the effort. The student must submit a written proposal describing the internship according to program guidelines. Each internship is monitored by the student's advisor.

TCOM 4800

Project Portfolio
Prerequisites: TCOM 4030; Senior standing; completion of 24 hours of TCOM courses.
3-0-3

Course examines portfolios as professional tools for technical communicators. The course includes portfolio and writing theory along with a collaborative workshop environment. Students develop a professional portfolio of sample documents based on course project, internship experiences, and/or work history. In addition, students write a reflective paper examining their growth and maturity as technical communicators. Interviewing techniques, resume writing, and the job search process are included in the course.

Information Design and Communication Graduate

IDC 6001

Technical Writing and Editing
3-0-3

Overview of technical writing and editing. Emphasis on drafting and editing many documents that reflect the variety of writing done in the field of technical communication. Both experienced and inexperienced writers will benefit from this course, which must be taken the first semester of enrollment in the master's program.

IDC 6002

Information Design
Prerequisite or Co-Requisites: IDC 6001, IDC 6030
3-0-3

Study of the main design elements in information products with an emphasis on rhetorical and theoretical underpinnings for design decisions. Students work on designing and redesigning products in various media. Requirements include a report on document design that demonstrates solid application of theoretical principles. Should be taken as soon as possible after admission.

IDC 6003

Advanced Editing
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course examines the responsibilities of an editor, including the skills and talents necessary to become a successful editor. Focus is on developmental editing, copyediting, editing graphics, and editing electronic documents. Also covers (a) interpersonal skills relative to editing, (b) organizational aspects of editing, and (c) production issues such as selecting paper stock, bidding jobs, binding documents, and inspecting presses on site for major jobs.

IDC 6004

Advanced Research
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course prepares students to write a journal-quality article or a master's thesis. Introduces methods of quantitative and qualitative inquiry used in technical communication research, develops the skills for conducting a search and review of literature, teaches techniques of collecting and analyzing data, and covers the elements of a formal research report. Strongly encouraged for students who choose the thesis option.

IDC 6030

Foundations of Graphics
Prerequisite: IDC 6001

An introduction to the fundamental elements and principles of graphic design and application of these concepts to page design and layout. Study of elementary color theory. Introduction to production techniques and current software applications. Students who took TCOM 4030 Foundations of Graphics as undergraduates must take IDC 6040 Applied Graphics as their required graphics course instead of IDC 6030. Students who took TCOM 4030 Foundations of Graphics as undergraduates may not count IDC 6030 for credit toward their graduate degree.

IDC 6040

Applied Graphics
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course examines the role of graphics in technical and professional communication. Students develop competency in desktop publishing, digital image editing, and vector-based graphics applications. Students complete practical projects that use typography, photographs, illustrations, engineering drawings, and data graphics. Projects focus on the role of graphics as both an independent communication and as support for text-based media used in business, industry, education, and training.

IDC 6045

Foundations of Multimedia
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

A study of the foundations of multimedia including theory, planning, scripting, storyboarding, and production. Students will submit research work on the theory of multimedia. This course is double-listed for both undergraduate and graduate students. Graduate students will be required to complete additional work that emphasizes theory and research over application. Thus they must demonstrate a higher level of learning than undergraduates. MSTPC students who took TCOM 4045 Foundations of Multimedia as undergraduates may not count IDC 6045 for credit toward their graduate degree.

IDC 6050

Applied Multimedia
Prerequisite: IDC 6001, IDC 6030, IDC 6045; Co- or Pre-Requisite: IDC 6002
3-0-3

Study of specific applications of multimedia in technical and professional communication, education, marketing, and training, including authoring for Web pages. Projects emphasize hypermedia, hyperlinks, and interactive design for use in technical manuals, proposals, informational kiosks, marketing presentations, resumes, and electronic information systems.

IDC 6060

International Technical Communication
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Survey of the major issues that affect technical communication from a global perspective. Topics may include cultural influences on communication, challenges associated with technical translation, differing uses of graphics, communicating within multinational organizations, and theoretical issues related to international communication.

IDC 6070

User Documentation
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Introduction to the process and principles of writing manuals, with emphasis on user manuals. Students write and produce all or part of a manual. Course includes study of structured writing. Course also includes discussion of (1) production issues, (2) theory relevant to designing usable and readable manuals, and (3) current software applications. MSTPC students who took TCOM 4070 User Documentation as undergraduates may not count IDC 6070 for credit toward their graduate degree.

IDC 6080

Professional Oral Presentations
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course designed to enhance students' presentation skills in a technical and business environment. Students practice various speech types such as briefings, interviews, formal technical presentations, panels, and impromptu presentations. Whenever possible, presentations are videotaped for analysis and review.

IDC 6090

Medical Communication
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course examines the scope of medical communication, with emphasis on opportunities for technical communication professionals. Students will analyze, edit, and revise various medical document types, such as medical research abstracts, patient education materials, professional medical training documents, medical advertisements, and pharmaceutical package inserts. Students will independently study medical terminology and develop a portfolio of medical writing samples.

IDC 6110

Communications Project Management
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course introduces and applies the literature, tools, and techniques of professional project management. Includes major online course elements. Students will choose a project in technical communication and apply the major phases of project management: definition, planning, execution, and closing. Topics of emphasis include communication skills, project management software tools, and project team dynamics.

IDC 6120

Usability Testing
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Study of the relevant research and practical application of usability testing as part of product development. Includes strategies for planning, conducting, and analyzing a test. Teams will perform tests and report results from an actual test in a usability lab.

IDC 6130

Online Documentation
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Study of the design and development of effective online Help systems and web-based documentation. Presents principles of usable online information design, task-based user analysis, and advanced tools and technologies for developing and delivering online information products, including single-sourcing, SGML, and XML. Students design and develop an HTML Help system. Instruction will be provided in the use of RoboHelp and alternative HTML Help authoring tools. Students entering the course without basic HTML knowledge will be expected to learn the basics of HTML on their own. This course is double-listed for both undergraduate and graduate students. Graduate students will be required to complete additional work that emphasizes theory and research over application. Thus they must demonstrate a higher level of learning than undergraduates.

IDC 6135

Website Design
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Advanced theoretical study and application of best practices for the design and delivery of information on the World Wide Web. Students learn the fundamentals of HTML, use of HTML authoring tools, web content writing and editing, page layout, design of web graphics and multimedia elements, and website architecture and content management. Students work individually and in teams to design and develop websites. Some classroom instruction is provided in basic HTML and XHTML coding, the composition of cascading style sheets, and the use of a current web site development software package.

IDC 6140

Instructional Systems Design
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course introduces and applies the literature, tools, and techniques of systematic instructional design. Includes substantial online course elements. Students will study major models of instructional design and apply them to develop and refine a unit of instruction. The course addresses the literature and theory underlying formal instructional development -- particularly cognitive psychology -- and provides practice in goal analysis, team instructional development, formative evaluation, and evaluation.

IDC 6145

Performance Technology
Prerequisite: TCOM 6001 and TCOM 6030; Co- or Pre-Requisite: TCOM 6002
3-0-3

Course introduces and applies the literature, tools, and techniques of performance technology. The performance technologist analyzes and solves human productivity and efficiency problems in the workplace. Students will examine major models of performance improvement, and adapt and apply them to simulated corporate productivity challenges, and to real opportunities in their own work experience. This highly participatory course is a natural complement to graduate courses in instructional design and instructional technology.

IDC 6150

Marketing Communication
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course examines those aspects of technical communication that include advertising, brochures, catalogs, press releases, and other means of marketing in both print and other media. Includes analysis of web pages and the uses of the World Wide Web for marketing purposes.

IDC 6160

Rhetoric: History, Theory, and Practice
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Course introduces rhetoric as the relationship between thought and expression. Explores connections between rhetoric and writing, between a public act and a personal thinking process, by examining classical and contemporary accounts of rhetorical history and theory. Students apply theory to their own writing as they explore the relationship between writers, readers, and subjects and the range of options available to communicators. This course is double-listed for both undergraduate and graduate students. Graduate students will be required to complete additional work that emphasizes theory and research over application. Thus they must demonstrate a higher level of learning than undergraduates.

IDC 6165

Writing Style in the Workplace
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

This course examines writing style in the workplace. Topics include grammar, paragraphs, sentence structure, diction, spelling, and revision, as well as some larger issues surrounding style (persuasion, discourse communities, appropriateness, tone, bias, ethos). The objective of the course is to make students better writers of technical prose by understanding how to make effective stylistic choices.

IDC 6170

Video Production
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

Introduction to the role and use of video production for technical and professional communication. Topics include scripts, storyboards, shot selection, continuity, lighting, sound, in-camera editing, and fundamental post-production techniques. Students complete at least two assigned videos as individual or team projects. This course is double-listed for both undergraduate and graduate students. Graduate students will be required to complete additional work that emphasizes theory and research over application. Thus they must demonstrate a higher level of learning than undergraduates. MSTPC students who took TCOM 4170 Video Production as undergraduates may not count IDC 6170 for credit toward their graduate degree.

IDC 6901-6903

Special Topics
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
1 to 3 hours

A course on a special topic of Importance and relevance to the field of technical and professional communication not covered in the graduate curriculum. Offered when needed.

IDC 7503

Independent Study
Prerequisite: IDC 6001 and IDC 6030; Co- or Pre-Requisite: IDC 6002
3-0-3

A directed study for a graduate student who wishes to pursue a special interest in technical and professional communication not covered in the curriculum. The student submits to the IDC Graduate Program Director a proposal that clearly defines the course of study and the benefits to be obtained. The proposal must be submitted at least one semester prior to registration for independent study hours. Once the proposal is approved, the student is assigned a faculty advisor and registers for 3 credit hours.

IDC 7601-7603

Master's Internship
Prerequisites: Completion of 27 hours of IDC coursework or consent of the department chair, confirmation of approved internship
1 to 3 hours

Course provides student with hands-on experience in technical communication in a professional environment. Work should be typical of technical communicators. Work may be either an extended project or a variety of shorter assignments. (Total of 6 hours of Master's Internship required.)

IDC 7801-7803

Master's Thesis

Prerequisites: Completion of 30 hours of IDC coursework or consent of the department chair, approval of thesis proposal
1 to 3 hours

Intensive research project that results in a formal written thesis. Usually flows from an area of interest discovered by the student in early stages of the Technical and Professional Communication program or through work experience. Thesis work will be closely supervised by the student's advisor. Students may enroll for a maximum of 3 hours per term for thesis credit, with exceptions at the discretion of the department chair. (Total of 6 hours of Master's Thesis required.)

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M. A., State University of New York at Binghamton
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B.S., Georgia Institute of Technology
A.I.A., N.C.A.R.B. Certificate Holder
Reg. Arch.

Farooq, Ameen
Professor

Ph.D., Georgia Institute of Technology
M. Arch. University of Idaho
B. Arch., University of Idaho
B. of Environmental Science, University of Punjab
A.P.A., A.I.A.,Reg. Architect.

Itzkowitz, Howard F.
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M. Arch.,Cranbrook Academy of Art
B. Arch., Rice University
Arch. Cert., Cooper Union
Reg. Arch.

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Rizzuto, Anthony
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M. Arch., University of Illinois,
BA of Design, University of Florida
Assoc A.I.A.

Sargent, Kenneth L., Jr.
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Master of Construction Management, Southern Polytechnic State University
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Reg. Arch.

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M. Arch, Tuskegee University
BA. Architecture, Tuskegee University
Reg. Arch., N.O.M.A.

Sobti, Manu F.
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Ph.D., Georgia Institute of Technology
M.Arch, Massachusetts Institute of Technology
B.S., School of Architecture – CEPT – Ahmedabad, India

Architecture Faculty Emeriti

Fausett, James G., Professor Emeritus, Architecture
Muller, Edward J., Professor Emeritus, Architectural Engineering Technology
Myatt, Robert L., Jr., Head and Professor Emeritus, Architectural Engineering Technology
Vaughn, Wilton W., Professor Emeritus, Architectural Engineering Technology

Civil Engineering Technology Faculty
Prof. Timothy W. Zeigler, Department Chair

Beadles, Samuel J. P.
Professor
M.S.C.E., University of California at Los Angeles
B.S.C.E., Northern Arizona University
P.E., Georgia

Currin, Thomas R.
Professor
Ph.D., University of Connecticut
M.C.E., North Carolina State University
B.S.C.E., Southeastern Massachusetts University
P.E., Connecticut, Georgia, Massachusetts, Kentucky

Mesbahi, Mehrdad
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M.S.C.E., University of Alabama
B.S.C.E., Clemson University
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M.E., University of Louisville
B.S., Universidad del Valle

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B.S., Southern Polytechnic State University
R.L.S., Georgia

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P.E., Illinois

Civil Engineering Technology Faculty Emeriti

Bennett, David M., Professor Emeritus
Holladay, Charles T., Head and Professor Emeritus
Troemel, Hans A., Associate Professor, Emeritus

Construction Faculty
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M.S., University of Manchester (UK)
M.S., Bangladesh University of Engineering and Technology
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Ph.D., University of Central England
M. Arch., Harvard University
M.A., University of Pennsylvania
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Construction Faculty Emeriti

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Mathematics Faculty Emeriti

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Ralph P. Youngblood, Professor Emeritus
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Ernest R. Stone, Associate Professor Emeritus
Robert H. Andrews, Associate Professor Em eritus
Ahmad Abusaid, Associate Professor Emeritus

Kathleen A. Hall, Professor Emeritus
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Dr. Paul Tippens
Dr. Jayanti Lahiri
Dr. Balkrishna Tambe
Dr. George Robinson
Professor Earl Oxford
Dr. Lee Tucker

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Humanities and Technical Communication Faculty Emeriti

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M.Engr., Pennsylvania State University
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B.E.E.T., Southern Polytechnic State University
P.E., California

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B.S.E.E., Georgia Institute of Technology

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B.S.E.E., University of Colorado

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M.S.E.E., Georgia Institute of Technology
B.E.E., GIT

Tippens, Scott J.
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B.S.E.E., Georgia Institute of Technology

Wilcox, Daren R.
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B.S.E.E., University of Central Florida

Zia, Omar
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M.S.E.E., Warsaw Technical University
B.S.E.E., Warsaw Technical University
P.E., California, Oregon, Georgia

Electrical and Computer Engineering Technology Faculty Emeriti

Burton, Walter E., Professor Emeritus
Castellucis, Richard L. Professor Emeritus
Carter, Robert C., Professor Emeritus
Cowan, Clifford W., Professor Emeritus
Dreyer, Robert N., Professor Emeritus
Keown, John L., Professor Emeritus

Summers, David E., Professor Emeritus
Wojnowiak, Paul, Professor Emeritus
Wilson, Julian, Professor Emeritus

Industrial Engineering Technology Faculty

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M.S., Georgia Institute of Technology
B.S., Georgia Institute of Technology
A.T.E.T., Southern Polytechnic State University

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BSIE, General Motors Institute

Industrial Engineering Technology Faculty Emeriti

Bannerman, James W., Professor Emeritus
Brooks, Glen E., Professor Emeritus
Carden, Patricia, Professor Emeritus
Carmichael, Thomas H., Professor Emeritus
Franklin, Patricia S., Professor Emeritus
Hamrick, Janes, Professor Emeritus
McClure, Hoyt L., Professor Emeritus
McGuire, Richard W., Professor Emeritus
McPherson, Jack, Professor Emeritus
Stephens, Kenneth S., Professor Emeritus
Wimberly, Charles A., Professor Emeritus

Management Faculty

Dr. Muhammad Obeidat, Department Chair

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M.B.A., Clark Atlanta University
J.D., Georgetown University

Davis, Sidney

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B.I.E., Georgia Institute of Technology
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B.S., Yarmouk University

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M.B.A., Georgia State University
B.S., University of Southern Mississippi

Vasa-Sideris, Sandra

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Ph.D., Georgia State University
M.B.A., Georgia State University
M.A., University of Tennessee
B.A., University of Tennessee

Warsi, T. A.

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M.A., Gorakhpur University
B.A., Agra University
B.Ed., Gorakhpur University

Yancy, Robert J.

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M.B.A., Atlanta University

B.A., Morehouse College

Mechanical Engineering Technology Faculty

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Ph.D., Institute of Paper Chemistry
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B.S., Pulp and Paper Technology, North Carolina State University
P.E., Alabama

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B.S.M.E., University of Michigan

Sweigart, John F.
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B.S.M.E., University of Missouri-Columbia
P.E., Georgia

Mechanical Engineering Technology Faculty Emeriti

Lee, Julian R., Professor Emeritus
Logue, Laurence J., Professor Emeritus
Taylor, Leonard H., Head and Professor Emeritus
Williams, Orren W., Professor Emeritus
Young, Ronald C., Professor Emeritus

Library Faculty

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Mills, Joyce White
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M.S.L.S., University of Wisconsin
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B.A., Beijing Foreign Language University

Universities

Georgia Institute of Technology	Atlanta
Georgia State University	Atlanta
Medical College of Georgia	Augusta
University of Georgia	Athens

Regional Universities

Georgia Southern University	Statesboro
Valdosta State University	Valdosta

State Universities

Albany State University	Albany
Armstrong Atlantic State University	Savannah
Augusta State University	Augusta
Clayton College & State University	Morrow
Columbus State University	Columbus
Fort Valley State University	Fort Valley
Georgia College & State University	Milledgeville
Georgia Southwestern State University	Americus
Kennesaw State University	Marietta
North Georgia College & State University	Dahlonega
Savannah State University	Savannah
Southern Polytechnic State University	Marietta
State University of West Georgia	Carrollton

Associate Degree Colleges

Abraham Baldwin Agricultural College	Tifton
Atlanta Metropolitan College	Atlanta
Bainbridge College	Bainbridge
Coastal Georgia Community College	Brunswick
Dalton State College	Dalton
Darton College	Albany
East Georgia College	Swainsboro
Gainesville College	Gainesville
Georgia Highlands College	Rome
Georgia Perimeter College	Decatur
Gordon College	Barnesville
Macon State College	Macon
Middle Georgia College	Cochran
South Georgia College	Douglas
Waycross College	Waycross