Undergraduate Academic Catalog 2006-2007

Undergraduate Catalog
2006-2007

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 State University is proud to be Georgia's Technology University. Our academic, professional, outreach and service programs embrace all aspects of technology, including the practical applied sills (***techne) needed*** to solve today's real-world problems and the theoretical knowledge (***logos***) necessary to meet tomorrow's challenges. SPSU graduates are well prepared to lead the scientific and economic development of an increasingly complex state, nation, and world.

Our mission is to serve both traditional and non-traditional students at the undergraduate, graduate, and continuing education levels; in engineering and engineering technology, the sciences, applied liberal arts, business and professional programs. We work to develop the broader community's intellectual, cultural, economic, and human resources. Facilitated by our innovative faculty, dedicated staff, and supportive campus environment, our learning community empowers SPSU students with the ability and vision to transform the future.

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	Ms. Phyllis Weatherly
Continuing Education Programs	Dean of Extended University	Ms. Dawn Ramsey
Cooperative Education Program	Director of Career and Counseling	Ms. Phyllis Weatherly
Counseling Services	Director of Career and Counseling	Ms. Phyllis Weatherly
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 Birckhead
Student Records	Registrar	Mr. Steve Hamrick
Testing Services	Coordinator of Testing	Mr. Jeff Orr
Transcripts	Registrar	Ms. Bennie Houck
Veteran Affairs	VA Coordinator	Mr. Greg Osborne

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

Calendar

Fall 2006

Aug 14-18	Mon-Fri	Fall Kick-Off Week (Faculty and Staff)
Aug 16-17	Wed/Thu	New Student Orientation
Aug 21	Mon	Classes Begin
Sep 4	Mon	Labor Day Holiday
Nov 22- 24	Wed - Sun	Thanksgiving Holiday for Students
Dec 7	Thurs	Last Day of Classes
Dec 8-13	Fri - Wed	Final Exams
Dec 16	Sat	Commencement

Spring 2007

Jan 5	Friday	New Student Orientation
Jan 8	Mon	First Day of Classes
Jan 15	Mon	Martin Luther King, Jr. Holiday
Mar 4 -10	Mon - Sat	Spring Break
Apr 26	Thurs	Last Day of Classes for Spring
Apr 27 – May 2	Fri - Wed	Final Exams
May 5	Sat	Commencement

Summer 2007

May 11	Fri	New Student Orientation
May 14	Mon	First Day of Classes
May 28	Mon	Memorial day Holiday
Jul 4	Wed	Holiday
Jul 19	Thurs	Last Day of Classes
Jul 20 – 25	Fri. - Wed	Finals
Jul 28	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 to check their SPSU e-mail frequently. All official notifications to the student body, groups of students, or individual students 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 Management. (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 a broad range of programs of study:

Associates Degree Programs
Associate of Science transfer program in General Studies

Bachelors Degree Programs
Bachelor of Apparel and Textiles
Bachelor of Applied Science
Bachelor of Architecture program
Bachelor of Arts programs in:
- Business Administration
- Computer Science
- English and Professional Communication
- Mathematics
- Physics

Bachelor of Science programs in:
- Biology
- Business Administration
- Civil Engineering Technology
- Computer Engineering Technology
- Computer Science
- Construction Engineering
- Construction Management
- Electrical Engineering Technology
- Industrial Engineering Technology
- Information Technology
- International Studies
- Mathematics
- Mechanical Engineering Technology
- Physics
- Software Engineering
- Surveying and Mapping
- Technical Communication
- Telecommunications Engineering Technology

Masters Degree Programs
Master of Business Administration (MBA)
Master of Science programs in:
- Computer Science
- Construction
- Engineering Technology (Electrical Concentration)
- Information Design and Communication
- Information Technology
- Quality Assurance
- Software Engineering
- Systems Engineering

Certificates

In addition to the above degree programs, SPSU also offers certificates in the following areas. The offering department is listed in parentheses.

Graduate

Graduate Certificate in Business Continuity (Information Technology)
Graduate Transition Certificate in Computer Science (Computer Science)
Graduate Certificate in Information Security and Assurance (Information Technology)
Graduate Certificate in Information Technology (Information Technology)
Graduate Transition Certificate in Information Technology (Information Technology)
Graduate Certificate in Quality Assurance (Industrial Engineering Technology)
Graduate Certificate in Software Engineering (Software Engineering)
Graduate Certificate in Technical Communication (English, Technical Communication and Media Arts)

Undergraduate

Certificate in Apparel Product Development (Industrial Engineering Technology)
Professional Certificate in Land Development (Construction Management)
Certificate in Engineering Sales (ETM)
Certificate in Land Surveying (Civil Engineering Technology)
Certificate in Logistics (Industrial Engineering Technology)
Certificate in Production Design (Industrial Engineering Technology)
Professional Certificate in Project Management: Construction (Construction Management)
Professional Certificate in Programming (Software Engineering)
Certificate in Quality Principles (Industrial Engineering Technology)
Professional (Online) Certificate in Specialty Construction (Construction Management)
Professional Spanish (International Studies)

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

SPSU Majors and Areas of Study

Area of Interest	See Section in Catalog	Major Offered
Accounting	Business Administration	B.S., Business Administration B.A., Business Administration
Anthropology	Social Sciences	courses only
Architecture	Architecture	B. Architecture
Art	Arts	Bachelor of Science Degree in Technical Communication—Digital Media and Graphics
Astronomy	Physics	courses only
Biochemistry	Biology	B.S., Biology—Biochemistry and Molecular Biology
Bioinformatics	Biology	B.S., Biology—Bioinformatics
Biology	Biology	B.S., Biology
Business	Business Administration	B.S., Business Administration B.A., Business Administration M.B.A., Business Administration (see graduate catalog)
Chemistry	Chemistry	*New major and minor is under consideration.*
Civil Engineering	Civil Engineering Technology	B.S., Civil Engineering Technology B.S., Surveying and Mapping
Computer Engineering	Electrical Engineering Technology	B.S., Computer Engineering Technology
Computer Science	Computer Science	B.A., Computer Science B.S., Computer Science M.S., Computer Science (See Graduate Catalog)
Construction Management	Construction Management	B.S., Construction Management M.S., Construction Management (See Graduate Catalog)
Construction Engineering	Construction Engineering	B.S., Construction Engineering
Electrical Engineering	Electrical Engineering Technology	B.S., Electrical Engineering Technology B.S., Computer Engineering Technology B.S., Telecommunications Engineering Technology M.S., Engineering Technology: Electrical (See Graduate Catalog)
Engineering	Engineering	multiple degrees – see catalog section
English	English	B.A., English and Professional Communication
Ethnic Studies	Social Sciences	courses only
Fashion Design	Fashion Design and Product Development	B.S., Apparel and Textile
French	Modern Languages	courses only
General Studies	General Studies	A.S. in General Studies
Geography	Social Sciences	courses only
History	History	B.S. in International Studies—History
Industrial Engineering	Industrial Engineering Technology	B.S. in Industrial Engineering Tech. M.S. in Quality Assurance (See Graduate Catalog) M.S. in Systems Engineering (See Graduate Catalog)
Information Design	See Graduate Catalog	M.S. in Information Design and Communication (See Graduate Catalog)
Information Technology	Information Technology	B.S in Information Technology M.S., Information Technology (See Graduate Catalog)

International Studies	International Studies	B.S. in International Studies
Languages	Modern Languages	B.S. in International Studies--Spanish
Management	Business Administration	B.A.S. in Management B.S., Business Administration B.A., Business Administration M.B.A. in Business Administration (see graduate catalog)
Mathematics	Mathematics	B.A. in Mathematics B.S. in Mathematics
Mechanical Eng.	Mechanical Engineering Technology	B.S. in Mechanical Engineering Technology
Operations Mgt.	See Graduate Catalog	M.S. in Operations Management
Physics	Physics	B.A. in Physics B.S. in Physics
Political Science	Political Science	B.S. in International Studies—Political Science
Pre-Law	International Studies	B.S. in International Studies—Technology and the Law
Pre-Medical	Biology	B.S. in Biology—Pre Professional
Psychology	Social Sciences	*New major and minor is under consideration.*
Quality Assurance	See Graduate Catalog	M.S. in Quality Assurance
Religion	Social Sciences	courses only
Science, Technology & Society	International Studies	B.S. in International Studies
Social Sciences	Social Sciences	B.S. in International Studies
Software Engineering	Software Engineering	B.S. in Software Engineering M.S., Software Engineering
Spanish	Modern Languages	B.S. in International Studies—Spanish
Speech	English	courses only
Surveying & Mapping	Civil Engineering Technology	B.S. in Surveying and Mapping
Systems Engineering	See Graduate Catalog	M.S. in Systems Engineering
Telecommunications	Electrical Engineering Technology	B.S. in Telecomm. Engineering Technology
Technical Communication	Technical and Professional Communications	B.S. in Technical Communication M.S. in Information Design and Communication
Textile Engineering	Textile Engineering Technology	B.S. in IET – Textile Engineering Technology Concentration

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.

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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	Priority 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)

Applicants with international credentials may be required to send their educational credentials to an approved SPSU professional evaluation service before being considered for admission.

Note: All new accepted applicants must submit a valid Certificate of Immunization to the SPSU Wellness Center prior to enrollment

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

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

Test	Minimum Score
SAT I Critical Reading	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 freshmen 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 Critical Reading	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 2006-2007 school year only):

Test	Score
SAT I – Critical Reading	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 Critical Reading (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 Critical Reading (23 ACT-English)
- Social Studies — Minimum required score of 530 on the SAT I Critical Reading (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 Critical Reading (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 1111 or 1112	**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), and 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 and 1302	8
English-Language/ Composition	3	ENGL 1101	3
English-Language/ Composition	5	ENGL 1101 and 1102	6
English-Literature/ Composition	3	ENGL 1101	3
English-Literature/ Composition	5	ENGL 1101 and 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 and 2112*	6

*In order to receive credit for HIST 2111, HIST 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 and 2112	6
Biology	4	BIOL 2107K or 2108K	4
Biology	5	BIOL 2107K and 2108K	8
Chemistry	5	CHEM 1211K and 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 and1112K) or (PHYS 2211K and 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)

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 applicants with international credentials may be required to send their educational credentials to an approved SPSU professional evaluation service before being considered for admission.

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

See Academic Regulations and Administrative Procedures for the policy on acceptance of transfer credit.

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) The transient letter must indicate that the applicant is in good standing and eligible to return to the home institution
- 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

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

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 Institute of Technology. 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- based TOEFL or	550
Computer-based TOEFL or	213
Internet-based TOEFL	79
AND	
COMPASS	74 Reading 60 Writing 37 Algebra

The COMPASS examination is administered 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

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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.

How Often Will SAP Be Checked?
Percentage completion rates and cumulative GPA requirements will be monitored at the end of each spring semester. If a student is not making SAP at the end of spring term they will be placed in one of two categories:

Financial Aid Probation
Students with a GPA of less than the required 2.00 but greater than or equal to 1.00
And/or
Students with a completion rate less than the required 66.7% but greater than or equal to 25%.

Financial Aid Suspension
Any student earning less than a 1.00 and/or earning a completion rate under 25%.
Any student on financial aid probation and still not making SAP

Students on Financial Aid Probation may receive financial aid. If the student does not achieve the required completion rate and cumulative GPA requirement by the end of the probationary year, he/she will be placed on **Financial Aid Suspension** until the requirements are met. Students on Financial Aid Suspension may not receive financial aid.

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Tuition and Fees

SEMESTER RATES, EFFECTIVE FALL 2006 CONTINUING STUDENTS

Georgia Residents

Credit Hours	1	2	3	4	5	6	7	8	9	10	11	12 or more
Undergraduate	399	514	629	744	859	974	1089	1204	1319	1434	1549	1661
Graduate	422	560	698	836	974	1112	1250	1388	1526	1664	1802	1935

Non-Residents

Credit Hours	1	2	3	4	5	6	7	8	9	10	11	12 or more
Undergraduate	743	1202	1661	2120	2579	3038	3497	3956	4415	4874	5333	5789
Graduate	835	1386	1937	2488	3039	3590	4141	4692	5243	5794	6345	6890

Distance Learning	**FY 2006-2007**
Undergraduate (resident and non-resident)	**$189 per credit hour *Plus $75Tech Fee***
Graduate (resident and non-resident)	**$227 per credit hour *Plus $75Tech Fee***

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*** ***$94***
- ***Health Service*** ***$23***
- ***Technology*** ***$75***

Parking Fees of $15.00 are not included.
A $40 fee for expendable lab supplies is attached to some laboratories.

Dorm fees:

- ***Howell Hall - $1605.00 per semester (Double occupancy).***
- ***Norton Hall - $1605.00 per semester (Double occupancy).***

Rental for the University Commons apartments (rented by the bedroom):

- ***$515 per month per student for a 2 bedroom 2 bath apartment, including utilities***
- ***$435 per month per student for a 4 bedroom 2 bath apartment, including utilities***

Rental for University Courtyard apartments (rented by the bedroom):

- ***$495.00 per month per student for a 4 bedroom 4 bath apartment, including utilities***

Meal Plans:

- ***14 meals per week*** ***$1030 per semester***
- ***19 meals per week*** ***$1200 per semester (includes Sat. & Sun. brunch and dinner)***

SEMESTER RATES, EFFECTIVE FALL 2006 **FIRST TIME FRESHMAN**

Georgia Residents

Credit Hours	1	2	3	4	5	6	7	8	9	10	11	12 or more
Undergraduate	401	518	635	752	869	986	1103	1220	1337	1454	1571	1687

Non-Residents

Credit Hours	1	2	3	4	5	6	7	8	9	10	11	12 or more
Undergraduate	752	1220	1688	2156	2624	3092	3560	4028	4496	4964	5432	5894

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- ***$495.00 per month per student for a 4 bedroom 4 bath apartment, including utilities***

Meal Plans:

- ***14 meals per week*** ***$1030 per semester***
- ***19 meals per week*** ***$1200 per semester (includes Sat. & Sun. brunch and dinner)***

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.)

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.

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.

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.

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 $40. 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 $60.00 (in addition to the $40.00 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 Life

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.

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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 467 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, Student Center Operations, 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.

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 four intercollegiate sports teams:

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

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, Disability Services, and Multi-Cultural Affairs. 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, chemistry, biology, 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. * Please Note: The schedule may vary from semester to semester.

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:

<table>
<tr><th>If your score is</th><th>On this test</th><th>Start in this Mathematics Course</th></tr>
<tr><td>23 or lower</td><td>MAT 1+2</td><td>MATH 1111 College Algebra</td></tr>
<tr><td>24 or higher</td><td>MAT 1+2</td><td>MATH 1113 Pre-calculus</td></tr>
<tr><td rowspan="2">26 or higher
AND
8 or higher</td><td>MAT 1+2</td><td rowspan="2">MATH 2253 Calculus
Or
MATH 2240 Elements of Calculus</td></tr>
<tr><td>MAT 3</td></tr>
</table>

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 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. Culture Fest 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.

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 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

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.

The Library

General Information – The Lawrence V. Johnson Library collection consists of some 118,000 cataloged volumes and more than 1,300 periodical and serials titles. Other formats include: Microforms, U.S. Geological Survey Maps for the State of Georgia; Professor Reserves; and Text Reserves. An increasingly popular service is e-Reserves whereby journal articles, sample tests, plus syllabi are delivered 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 area of the Library which has wireless access.

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. GILExpress is a self- initiated, free service to request materials from other University System of Georgia Libraries.

Additional information about services offered at the Johnson Library may be accessed at http://www.spsu.edu/library/library.html; or, patrons may place queries on email at reference@spsu.edu .

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.

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:

- A+/Net+ Certificate
- AutoCAD User Certification
- CISCO Certified Network Associate (CCNA)
- Certified Information Systems Security Professional (CISSP) Certification Program
- E-Business Solutions in Java Certificate
- Embedded Systems Software certificate
- Linux+ Certificate Program
- Microsoft Certified Systems Administrator 2003 Certificate
- Microsoft Certified Application Developer (MCAD)
- Microsoft Office XP Master Prep
- Oracle 10g Database Certificate
- Professional Project Management Certificate Program
- Web Development Certificate Program
- Six Sigma Certification Training
- Roadmap to Certified Professional Facilitator (CPF)
- Lean Enterprise Certification
- (CQIA) Certified Quality Improvement Associate
- (CMQ/OE) Certified Manager of Quality/Organizational Excellence

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 (SIS dept.)

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

Academic Regulations and Administrative Procedures

Academic Regulations

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Introduction and 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 and who is making sufficient progress toward a degree as defined by completing at least two-thirds of attempted courses.

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). 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.

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.

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.

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

Warning

Warning – A freshman or sophomore student whose cumulative GPA is between 1.8 and 1.99 or who does not satisfactorily complete at least 60% of attempted courses for a term, or 80% of cumulative courses, will receive a letter of Warning from the Student Status Committee.

Probation

Probation – A student whose cumulative GPA falls below

1.8 – 2nd semester Freshman or Sophomore
2.0 – Junior or Senior

or whoever does not satisfactorily complete at least 67% of attempted courses for a term, or 67% of cumulative courses will be considered for placement on the probation list by the Student Status Committee.

A student will remain on the probation list until the terms of probation are satisfied, or until the student is moved to the deferred suspension list by virtue of continued unsatisfactory academic progress.

Deferred Suspension

Deferred Suspension – A student whose cumulative GPA falls below

1.8 – 2nd semester Freshman or Sophomore
1.9 – Junior or Senior

and whoever has previously been on probation will be placed on deferred suspension. Students on deferred suspension will be required to fulfill specific, individual, conditions detailed by the Student Status Committee (such as required to repeat particular courses with grades of "C" or better, to earn "C" grades in all attempted courses, to take no more than *x* courses in the following semester, to participate in SPSU 1001, etc.)

Suspension

Suspension – A student who does not satisfy the terms of deferred suspension or who does not improve academic progress after having been placed on deferred suspension may be suspended at the discretion of the Student Status Committee.

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

Reinstatement – Students who have been suspended may appeal for reinstatement to the Student Status Committee. A letter from the student detailing the reasons why the appeal should be considered must be submitted, along with any supporting materials (doctor's notes, support letters from faculty, etc.).

Appeals Procedure (also see grade appeals)

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.

Attendance

There are no formal institutional regulations regarding class attendance. Each classroom or laboratory instructor sets his or her own attendance policy. However, instructors are required to report the names of students who do not attend to the registrar's office. 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.

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.

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.

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.

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 and that students are responsible for information sent to their email accounts.

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. Continuous enrollment is required in order to continue to use the catalog in effect at the time of admission.

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).

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.

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.

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.

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.

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:

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).

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 Hrs*	*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*

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.

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.

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.

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	Some courses 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.

Graduation

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 published deadline.

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.

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 following 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).

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.

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.

Minor (Also see minors in the curriculum section)

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.

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.

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.

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.

Repeat Courses

Students are free to repeat courses as many times as they like. For the purposes of calculating the institutional GPA, only the last attempt is used. Other attempts remain on the transcript, but are not used in calculating the institutional GPA. Financial aid GPA's and other non-institutional GPA's may count all attempts.

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

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.

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.

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
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.

Transfer Credit (Policy for Acceptance of)

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.

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.

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.

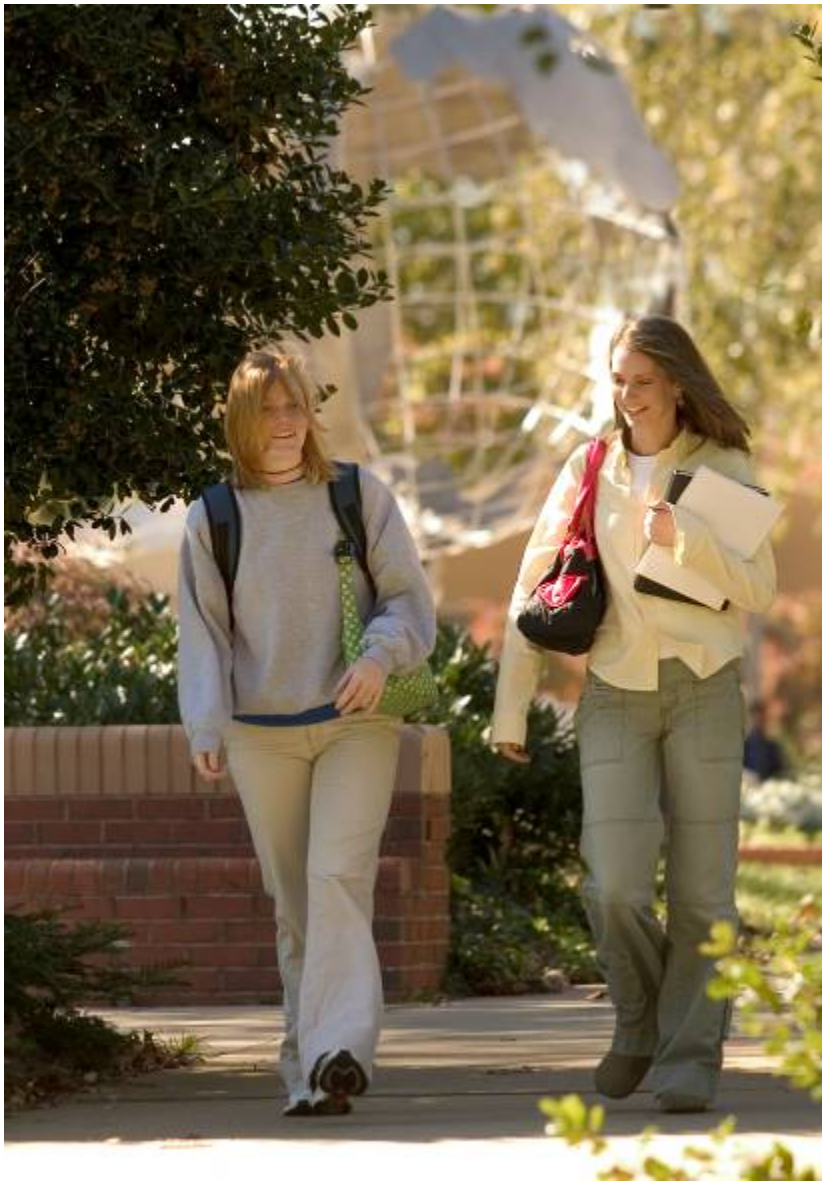
Withdrawals After the Deadline

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

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

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.**



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 Management	Construction Management (BS, MS)
Civil Engineering Technology	Civil Engineering Technology (BS) Construction Engineering (BS) Surveying and Mapping (BS)
The School of Arts and Sciences	
Biology, Chemistry, Physics	Biology (BS) Physics (BA, BS)
English, Technical Communication and Media Arts	English and Professional Communication (BA) Technical Communication (BS) Information Design and Communication (MS)
Social and International Studies	International Studies (BS) General Studies (AS)
Mathematics	Mathematics (BA, BS)
The School of Computing and Software Engineering	
Computer Science	Computer Science (BA, BS, MS)
Information Technology	Information Technology (BS, MS)
Software Engineering	Software Engineering (BS, MS)
The School of Engineering Technology and Management	
Electrical and Computer Engineering Technology	Electrical Engineering Technology (BS) Computer Engineering Technology (BS) Telecommunications Engineering Technology (BS) Engineering Technology – Electrical (MS)
Industrial Engineering Technology	Industrial Engineering Technology (BS) Apparel and Textiles (BApT) Textile Engineering Technology (BS) Quality Assurance (MS) Systems Engineering (MS)
Mechanical Engineering Technology	Mechanical Engineering Technology (BS)
Management	MBA (MBA) Management (BS) Applied Science (BAS)

SPSU Majors and Areas of Study

Area of Interest	See Section in Catalog	Major Offered
Accounting	Business Administration	B.S., Business Administration B.A., Business Administration
Anthropology	Social Sciences	courses only
Architecture	Architecture	B. Architecture
Art	Arts	Bachelor of Science Degree in Technical Communication—Digital Media and Graphics
Astronomy	Physics	courses only
Biochemistry	Biology	B.S., Biology—Biochemistry and Molecular Biology
Bioinformatics	Biology	B.S., Biology—Bioinformatics
Biology	Biology	B.S., Biology
Business	Business Administration	B.S., Business Administration B.A., Business Administration M.B.A., Business Administration (see graduate catalog)
Chemistry	Chemistry	*New major and minor is under consideration.*
Civil Engineering	Civil Engineering Technology	B.S., Civil Engineering Technology B.S., Surveying and Mapping
Computer Engineering	Electrical Engineering Technology	B.S., Computer Engineering Technology
Computer Science	Computer Science	B.A., Computer Science B.S., Computer Science M.S., Computer Science (See Graduate Catalog)
Construction Management	Construction Management	B.S., Construction Management M.S., Construction Management (See Graduate Catalog)
Construction Engineering	Construction Engineering	B.S., Construction Engineering
Electrical Engineering	Electrical Engineering Technology	B.S., Electrical Engineering Technology B.S., Computer Engineering Technology B.S., Telecommunications Engineering Technology M.S., Engineering Technology: Electrical (See Graduate Catalog)
Engineering	Engineering	multiple degrees – see catalog section
English	English	B.A., English and Professional Communication
Ethnic Studies	Social Sciences	courses only
Fashion Design	Fashion Design and Product Development	B.S., Apparel and Textile
French	Modern Languages	courses only
General Studies	General Studies	A.S. in General Studies
Geography	Social Sciences	courses only
History	History	B.S. in International Studies—History
Industrial Engineering	Industrial Engineering Technology	B.S. in Industrial Engineering Tech. M.S. in Quality Assurance (See Graduate Catalog) M.S. in Systems Engineering (See Graduate Catalog)
Information Design	See Graduate Catalog	M.S. in Information Design and Communication (See Graduate Catalog)
Information Technology	Information Technology	B.S in Information Technology M.S., Information Technology (See Graduate Catalog)

International Studies	International Studies	B.S. in International Studies
Languages	Modern Languages	B.S. in International Studies--Spanish
Management	Business Administration	B.A.S. in Management B.S., Business Administration B.A., Business Administration M.B.A. in Business Administration (see graduate catalog)
Mathematics	Mathematics	B.A. in Mathematics B.S. in Mathematics
Mechanical Eng.	Mechanical Engineering Technology	B.S. in Mechanical Engineering Technology
Operations Mgt.	See Graduate Catalog	M.S. in Operations Management
Physics	Physics	B.A. in Physics B.S. in Physics
Political Science	Political Science	B.S. in International Studies—Political Science
Pre-Law	International Studies	B.S. in International Studies—Technology and the Law
Pre-Medical	Biology	B.S. in Biology—Pre Professional
Psychology	Social Sciences	*New major and minor is under consideration.*
Quality Assurance	See Graduate Catalog	M.S. in Quality Assurance
Religion	Social Sciences	courses only
Science, Technology and Society	International Studies	B.S. in International Studies
Social Sciences	Social Sciences	B.S. in International Studies
Software Engineering	Software Engineering	B.S. in Software Engineering M.S., Software Engineering
Spanish	Modern Languages	B.S. in International Studies—Spanish
Speech	English	courses only
Surveying + Mapping	Civil Engineering Technology	B.S. in Surveying and Mapping
Systems Engineering	See Graduate Catalog	M.S. in Systems Engineering
Telecommunications	Electrical Engineering Technology	B.S. in Telecomm. Engineering Technology
Technical Communication	Technical and Professional Communications	B.S. in Technical Communication M.S. in Information Design and Communication
Textile Engineering	Textile Engineering Technology	B.S. in IET – Textile Engineering Technology Concentration

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 (9-10 hours)

- English Composition I
- English Composition II
- College Algebra, Pre-Calculus or Calculus I, depending on major

Transfer Students: Transfer evaluation of courses in Area A is determined on a course-by-course basis.

B. Institutional Options (4 hours)
These courses address institution-wide general education outcomes chosen by the University. Examples include, but are not limited to, global issues, oral communication, information technology, critical thinking, wellness, geography, and foreign languages. At Southern Polytechnic State University, the Institutional Option courses are:

- Public Speaking (SPCH 2400)
- Science, Technology and Society (STS 2400)

Transfer Students: If you have completed Area B at your original institution, Southern Polytechnic State University will accept this area in its entirety. If you did not complete this area at your original institution, you will be required to take the courses above to complete the necessary hours. We will accept courses in this area whether or not we offer the course at SPSU.

C. Humanities/Fine Arts (6 hours)
These are courses that address humanities/fine arts learning outcomes and which the undergraduate curriculum committee has approved. Interdisciplinary courses are acceptable.

Transfer Students: If you have completed Area C at your original institution, Southern Polytechnic State University will accept this area in its entirety. If the area has not been completed, you will be required to take additional course work to complete the necessary hours. We will accept courses in this area whether or not we offer the course at SPSU.

D. Science, Mathematics, and Technology (10-11 hours)
These are courses approved by the undergraduate curriculum committee 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 Students: Transfer evaluation of courses in Area D is on a course-by-course basis. SPSU will accept any approved course in this area. If you have completed Area D at your original institution, Southern Polytechnic State University will accept this area in its entirety. If the area has not been completed, you will be required to take additional course work to complete the necessary hours.

E. Social Sciences (12 hours)
These are courses approved by the undergraduate curriculum committee that 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 constitution requirement, course(s) shall be part of this area.

Transfer Students: If you have completed Area E at your original institution, Southern Polytechnic State University will accept this area in its entirety. If the area has not been completed, you will be required to take additional course work to complete the necessary hours, but never exceeding a total of fourteen semester hours between you former institution and SPSU. We will accept courses in this area whether or not we offer the course at SPSU.

F. Courses Related to the Program of Study (18 hours)
These are courses numbered below 3000 that are related to your program of study, and courses which are prerequisites to major courses at higher levels.

Transfer Students: Transfer evaluation of courses in Area D is on a course-by-course basis. If you have completed Area F at your original institution, Southern Polytechnic State University will accept this area in its entirety. If the area has not been completed, you will be required to take additional course work to complete the necessary hours.

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
	or			
	MATH	2253	Calculus	4
NOTE: See your academic advisor for information about which specific math course you should take.				
			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
	MATH	2254	Calculus II	4
				Area Total is 11 or 12 Hours

Area E				
Social Sciences **Four Courses Are Required**				
All Students must complete one course from each of the following four groups				
	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 two.	HIST	1111	World Civ: Pre 1500	3
	HIST	1112	World Civ: Post 1500	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

Architecture

Area F			18 Hours
DFN	1001	Design Foundation I	4
DFN	1002	Design Foundation II	4
DFN	2003	Design Foundation III	4
DFN	2004	Design Foundation IV	3
DFN	2211	Introduction to Structures	3

Biology

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

Business Administration

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

Civil Engineering Technology

Area F			18 Hours
(The extra hour from area A is counted here)			
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

Construction Management

Area F			18 Hours
ACCT	2101	Accounting I	3
CET	2200	Introduction to Structures	4
CNST	2000	Construction Graphics	3
TCOM	2010	Technical Writing	3
MGNT	3205	Management Information Systems	3
CNST	3500	Building Codes	2

Computer Engineering Technology

Area F			18 Hours
(The extra hour from areas A and D are counted here)			
ECET	1100	Circuits I	4
ENGR	1210	Survey of Engineering Graphics	2
TCOM	2010	Technical Writing	3
MATH	2254	Calculus II	4
MATH	2335	Numerical Methods I	3

Computer Science

Area F			18 Hours
(Unused hours from Area A and D and 1 Free elective applied here)			
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
MATH	2254	Calculus II	4
MATH	2345	Discrete Math	3

Electrical Engineering Technology

Area F			18 Hours
(The extra hour from areas A and D are counted here)			
ENGR	1210	Survey of Engineering Graphics	2
TCOM	2010	Technical Writing	3
MATH	2254	Calculus II	4
MATH	2306	Ordinary Differential Equations	3
CHEM	1211K*	Principles of Chemistry I	4

English and Professional Communication BA

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	2060	International Technical Communication	3
Math or Science		Elective	3

General Studies

Area F	18 Hours
(The extra hour from areas A and D are counted here)	
Any approved lower level course	0-9
Humanities	3-9
Mathematics or Science	0-8
Social Sciences	3-9

Industrial Engineering Technology

Area F			18 Hours
(The extra hour from areas A and D are counted here)			
CHEM	1211K	Principles of Chemistry I	4
IT	1113	Programming Principles	3
ENGR	1210	Survey of Engineering Graphics	2
ENGL	2010	Technical Writing	3
IET	2305	Principles of Industrial Systems	4

Information Technology

Area F			18 Hours
(The extra hour from area A is counted here)			
ACCT	2101	Accounting I	3
MATH	2260	Probability & Statistics	3
	OR		
IET	2227	Industrial Statistics	3
CS	1301	Computer Science I	4
MATH	2345	Discrete Mathematics	3
IT	1324	Advanced Programming Principles	4
Unused hour from area A			1

International Studies

Area F			18 hours
ECON	2106	Micro Economics	3
SPAN	2001	(Or 6 hours in another language at a similar level)	3
SPAN	2002		3
SIS	2100	Introduction to Quantitative Research Methods	3

Mathematics

Area F			18 Hours
(Extra hour from areas A and D are counted here)			
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
MATH	2254	Calculus II	4
MATH	2255	Calculus III	4

Mechanical Engineering Technology

Area F			18 Hours
(The extra hour from area A is counted here)			
CHEM	1211K	Principles of Chemistry I	4
CS	2123	C Programming	3
TCOM	2010	Technical Writing	3
MATH	2254	Calculus II	4
MATH	2306	Ordinary Differential Equations	3

Physics

Area F			18 Hours
(The extra hour from areas A and D are counted here)			
PHYS	2211K	Principles of Physics I	4
PHYS	2212K	Principles of Physics II	4
MATH	2254	Calculus II	4
MATH	2255	Calculus III	4

Software Engineering

Area F			18 Hours
(The extra hour from areas A and D are counted here)			
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

Surveying and Mapping

Area F			18 Hours
(The extra hour from area A is counted here)			
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

Technical and Professional Communication BS

Area F			18 Hours
(The extra hour from Area D is counted here)			
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		3

Telecommunication Engineering Technology

Area F			18 Hours
(The extra hour from areas A and D are counted here)			
ENGR	1210	Survey of Engineering Graphics	2
TCOM	2010	Technical Writing	3
MATH	2254	Calculus II	4
MATH	2260	Probability and Statistics	3
ECET	1100	Circuits I	4

Programs of Study

In Alphabetical Order

Architecture

Offering the Bachelor of Architecture

Architecture

Offering the Bachelor of Architecture Degree

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.

An architect tackles many issues: people's needs, building needs, a building site, and environmental concerns. Because creativity is the greatest source of solutions that fit all these issues, students find that a background in art proves helpful. The best ideas are bigger than a computer mouse or a drafting instrument, so we've structured a program that puts your imagination and your hands to work from Day One.

Known as a 2+3 program, our School begins with two years of Design Foundation. Students analyze the organization of space, building designs by noted Architects, and contextual issues. They evaluate each building's successes and failures, and discuss how they might make changes to improve the designs. This preparation introduces you to the issues, processes, and the spirit of experimentation that characterizes the professional design of built environments. This experience forms a foundation of skills that you develop more fully during the last three years of the program. Because our courses must be taken in sequence, Architecture students typically attend year-round. We augment class work with field trips to Savannah, Las Vegas, New Orleans, and other architectural destinations.

Many students elect to take our Furniture Design Studio, following in the footsteps of great architects who design and create furniture — and learning much from the process of choosing materials, creating joints, and fitting together materials. Next to this studio, a spacious workshop provides tools for use in modeling and construction projects.

Laptops and drafting instruments come in handy, but the most important piece of equipment for an architect is imagination. Initially, SPSU's award-winning faculty stimulate ideas through freehand drawing, which helps you reach into your creative "well" and channel those images onto paper.

Next, you'll learn a lot about scale and materials by putting models together. After you master these two skills, you're ready for computer use. Each studio space comes equipped with tack-, cutting-, and drawing boards. During the first two years, you will share space, and in the Professional Program (years 3, 4, and 5), we give you a dedicated space that resembles that of a working architect in professional practice.

Throughout this program of study, you work with outstanding educator practitioners. Our faculty includes several Fellows of the American Institute of Architects, as well as faculty who have earned their Ph.D. — an unusual distinction in our profession.

Why study Architecture at SPSU?

In their review of our program, the National Architectural Accrediting Board cited Southern Polytechnic's Architecture program as unique in every way from other programs. The difference lies in our approach -- in our mission to foster invention, creativity and craft through hands-on exploration of architecture.

About the program

SPSU is the only public state institution in Georgia to offer the Bachelor of Architecture degree.
Our membership in the School of Architecture, Civil Engineering Technology, and Construction affords our students the opportunity to take classes in Construction and Civil Engineering for a multi-disciplinary degree. We also offer classes in furniture design, applied architectural research and designing/building.

The faculty

The majority of our faculty members are licensed architects, some with active architectural offices. Their fields of expertise encompass the areas of architectural design, environmental design, environmental psychology, cultural anthropology, urban design, urban planning, cultural diversity, structural design, methods of construction sustainability, architectural history and criticism, professional practice, and computer application... to name a few. The depth and breadth of our faculty's backgrounds is reflected in the choices available to Architecture students at Southern Polytechnic.

Faculty:

Kathryn L. Bedette,	Assistant Professor
William J. Carpenter	Professor
C. Richard Cole	Professor
Ameen Farooq	Professor and department chair
Howard F. Itzkowitz	Professor
Harry F. Kaufman,	Professor
Elizabeth Martin,	Assistant Professor
Anthony Rizzuto	Assistant Professor
Kenneth L. Sargent, Jr.	Assistant Professor
Ermal Shpuza	Assistant Professor
Robert Tango	Assistant Professor
M. Saleh Uddin	Professor
Christopher Welty,	Assistant Professor

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.

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.

Requirements for the Bachelor of Architecture

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
Area C1		Take One Course from the Literature Group	3
Area C2		Take One Course from the Art and Culture Group	3
MATH	1113	Pre-calculus	4
MATH	2253	Calculus I	4
Area D		Lab Sciences (Two courses) – Physics is Recommended	8
Area E	Group 1	American Context, one course	3
Area E	Group 2	World History, one course	3
Area E	Group 3	Behavioral Science, one course	3
Area E	Group 4	Cultures and Societies, one course	3
DFN	1000	School of Architecture Orientation	2
DFN	1001	Design Foundation I	4
DFN	1002	Design Foundation II	4
DFN	2003	Design Foundation III	4
DFN	2004	Design Foundation IV	3
DFN	2111	Architecture Culture I	3
DFN	2211	Introduction to Structures	3
DFN	3241	Computer Application in Architecture	2
ARCH	3011	Architecture Studio I	4
ARCH	3012	Architecture Studio II	4
ARCH	3112	Architecture Culture II	3
ARCH	3113	Architecture Culture III	3
ARCH	3211	Building Technology I	2
ARCH	3212	Building Technology II	3
ARCH	3221	Environmental Technology I	2
ARCH	3222	Environmental Technology II	3
ARCH	3311	System Selection & Documentation	3
ARCH	4013	Architecture Studio III	4
ARCH	4014	Architecture Studio IV	4
ARCH	4114	Architectural Theory I	2
ARCH	4115	Architectural Theory II	2
ARCH	4213	Building Technology III	2
ARCH	4214	Building Technology IV	2
ARCH	4223	Environmental Technology III	3
ARCH	4312	Codes	2
ARCH	5015	Architecture Studio V	4
ARCH	5116	Urban Planning and Design Theory	2
ARCH	5313	Professional Practice and Ethics	3
ARCH	5593	Diploma Project Research	3
ARCH	5999	Diploma Project	5
Free Electives			15
Degree Program Total			150

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.

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

Offering the Bachelor of Science in Technical Communication – Digital Media and Graphics

Arts

(Bachelor of Science Degree in Technical Communication—Digital Media and Graphics Offered)

The Digital Media and Graphics program is part of the English, Technical Communication and Media department in the School of Arts and Sciences. The program is designed to prepare students for a variety of communication careers. Possible positions include:

- Technical communicator
- Documentation specialist
- Technical editor
- Information Design
- Multimedia specialist
- 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 must make a grade of at least a C in all major courses.

In addition, Southern Polytechnic State University offers a variety of arts courses that may be used to satisfy core requirements, or as free electives.

Faculty:

Carol Barnum	Professor
Terry Carter	Assistant Professor
Beth Farber	Lecturer
Richard Hahn	Lecturer
Kim Haimes-Korn	Associate Professor
Jack Haley	Instructor
Keith B. Hopper	Associate Professor
Jon Lindsay	Instructor
Monique Logan	Instructor
Mark Nunes	Associate Professor
Betty Oliver	Professor
Iraj Omidvar	Assistant Professor
Jeffrey Orr	Instructor
Ann Parker	Instructor
Nancy L. Reichert	Associate Professor
Michele Shauf	Assistant Professor
Cheryl Shinall,	Instructor
Herbert J. Smith	Associate Professor
Charlotte Stephenson	Instructor
Mark K. Stevens	Associate Professor
Thomas Wiseman	Associate Professor

Requirements for the Bachelor of Science in Technical Communication—
Digital Media and Graphics Concentration

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two courses in Laboratory Science	8
Area E	Group 1	Course in American Context	3
Area E	Group 2	Course in World History	3
Area E	Group 3	Course in Behavioral Science	3
Area E	Group 4	Course in Cultures and Societies	3
ARTS	3000	Visual Thinking	3
ENGL	3030	Grammar for Professional Communicators	3
TCOM	2000	Business Communication	3
TCOM	2010	Technical Writing	3
TCOM	2020	Foundations of Technical Communication	3
TCOM	2030	Research in Technical Communication	3
TCOM	2060	International Technical Communication	3
TCOM	4030	Foundation of Graphics	3
TCOM	4035	Fundamentals of Website Design	3
TCOM	4045	Foundations of Multimedia	3
TCOM	4050	Applied Graphics for Technical Communicators	3
TCOM	4100	Small Group Communication	3
TCOM	4160	Rhetoric: History, Theory and Practice	3
TCOM	4170	Video Production	3
TCOM	4800	Project Portfolio	3
TCOM electives:			15
		Select any five additional courses with a ENGL or TCOM prefix	
Free Electives			17
Degree Program Total			120

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.)

Arts Courses

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
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. Studio Course; open to all students.

ARTS 290x
Special Topics

Special topics in the arts - especially music, art, or drama. Offered by the program at its discretion. 1 to 3 hours.

ARTS 3000
Visual Thinking
Prerequisites: TCOM 2010; Prerequisite or co-requisite: TCOM 2020 or TCOM 2030
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. .

Technical and Professional Communication Courses

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 are 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.

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
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 390x
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 Dream Weaver and FrontPage.

TCOM 4040
Applied Graphics for Technical Communicators
Pre- or co-requisite: TCOM 2010, TCOM 2040, and TCOM 2040
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 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.

Biology

Offering the Bachelor of Science in Biology

Biology

Offering the Bachelor of Science in Biology Degree
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.

The fast-moving disciplines of biology and physics are generating exciting careers, from medical scientist to genetic engineer and patent prosecution attorney. At Southern Polytechnic, you will learn in small classes and work in laboratories equipped with the newest scientific instrumentation. Faculty teach both labs and classes, including core courses offered both day and night. Bring a curious mind to our programs, and we'll help you develop a broad technical base for unlimited professional opportunities.

Balancing traditional studies with the growing emphasis on biotechnology, the Biology program gives students the knowledge and experience they need for advanced degrees or immediate employment. The general track offers the most diverse coursework, and three others focus on particular interests: molecular/biochemistry, pre-professional, and bioinformatics. Students can also pursue independent research in our labs, which feature high-speed centrifuges, thermal cyclers, environmental chambers, and other modern research tools.

Today the pace of technological change doubles every 18 months, and key developments are occurring in molecular science. Collaborating on experiments will prepare you for team-based work, whether your dream job is safeguarding public health, analysis of DNA samples, or creating gene therapies for "incurable" diseases. Many of our students plan on medical school, but our program prepares you for many careers that blend science with business, law, pharmacy, and other professions.

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.

Faculty:

Michael B. Beach	Associate Professor
Mark Sugalski	Associate Professor
Peter Sakaris	Assistant Professor

Biology career options

Agribusiness expert
Conservation manager
Dentist
Dietitian
Drug design and developer
Environmental lawyer
High school teacher or university professor
Laboratory technician
Pharmacist
Physician
Physical or occupational therapist
Research molecular biologist or biochemist
Scientific editor
Veterinarian

Requirements for the BS in Biology

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
MATH	1113	Pre-calculus	3
MATH	2253	Calculus I	4
MATH	2260	Probability and Statistics	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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 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
CHEM	1211K	Principles of Chemistry I	4
CHEM	1212K	Principles of Chemistry II	4
CHEM	2511K	Organic Chemistry I	4
CHEM	2512K	Organic 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
BIOL	3000K	Genetics	4
BIOC	3111K	Biochemistry I	4

Track Requirement Take one of the tracks described below. **39 hours**

Degree Program Total **120**

NOTE: PHYS 2211K and 2212K may be taken instead of PHYS 1111K and 1112K

Requirements for a Minor in Biology:

To be eligible for a minor in Biology, the student must complete:

- A minimum of 18 semester hours of Biology coursework
- 9 of the 18 hours in Biology must be upper level courses (3000 or above)
- Students who use BIOL 2107K and/or 2108K to satisfy Core D requirements cannot use these courses to satisfy requirements of the minor

Bioinformatics Track Requirements

BIOL	3310K	Molecular Biology	4
BIOL	4500K	Bioinformatics I	4
BIOL	4510K	Bioinformatics II	4
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
CS	3153	Database Systems	3
Free Electives			4 – 7
BIOL ELEC At least 3 additional upper-level courses in BIOL above 2108K			9 – 12

Biochemistry & Molecular Biology Track Requirements

BIOL	3200K	Biotechnology	4
BIOL	3310K	Molecular Biology	4
BIOC	3112K	Biochemistry II	4
Free Electives			11 – 15
BIOL	ELEC At least 4 additional Biology Courses Above 2108K (Excluding Track Requirements)		12-16

Pre-Professional Track Requirements

BIOL	3400K	Cell Physiology	4
BIOL	4400K	Anatomy & Physiology I	4
BIOL	4460K	Anatomy & Physiology II	4
BIOL	ELEC At Least 4 Biology Courses Above 2108K (Excluding Track requirements)		12-16
Free Electives			13-16

General Biology Track Requirements

BIOL	3300	Ecology	3
Free Electives			16-19
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).

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
3-3-4

The morphology, physiology, genetics and biochemistry of microorganisms with emphasis on bacteria and viruses. Laboratory exercises supplement classroom work. Biochemistry I is recommended , but not required, prerequisite for this course.

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.

Business Administration

Offering:

The Bachelor of Applied Science
Bachelor of Science in Business Administration
The Bachelor of Arts in Business Administration
The Masters of Business Administration
(See the graduate catalog)

Business Administration

(Bachelor of Science, Bachelor of Arts, Bachelor of Applied Science and M.B.A. degrees offered)

The baccalaureate programs in Business Administration prepare students for successful careers in management and marketing. 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 for transfer students. 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 Business Administration** enables students interested in international issues the opportunity to complete a minor in International Studies including a foreign language.

The **Bachelor of Science in Business Administration** 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. The program has four tracks: Management; Management Information Systems; Management of Operations and Technology Management; and Marketing.

Note: Students enrolled in Business Administration degree programs are expected to maintain a "C" average (2.0 GPA) in their major.

The Faculty:

Jennie S. Conn	Associate Professsor
Sidney Davis	Professor
Max M. North	Associate Professor
Muhammad A. Obeidat	Professor and Department Chair
Ronny Richardson	Professor
Sandra Vasa-Sideris	Associate Professor
T.A. Warsi	Associate Professor

Requirements for the Bachelor of Applied Science—Business Administration

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1113	Pre-Calculus	4
MATH	2240	Survey of Calculus	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two courses in Laboratory Science	8
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ECON	1101	Introduction to Economics	3
IET	2227	Industrial Statistics	3
IET	4405	Principles of Operations Research	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	3205	Management Information Systems	3
MGNT	4115	Human Resources Management	3
MGNT	4125	Technology and Public Issues	3
MGNT	4145	International Management	3
MGNT	4151	Operations Management	3
MGNT	4596	Business Strategy	3
Management Elective: Select 1 additional MGNT course			3

Technical Block
Students who have completed an A.A.S. or A.A. T. degree may obtain transfer credit for up to 38 credit hours from approved associate programs.

Degree Program Total	123

Requirements for the Bachelor of Arts in Business Administration

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2000	Business Communication	3
MATH	1113	Pre-Calculus	4
MATH	2240	Survey of Calculus	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two courses in Laboratory Science	8
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ACCT	2101	Accounting I	3
ACCT	2102	Accounting II	3
ECON	2105	Macroeconomics	3
ECON	2106	Microeconomics	3
IET	2227	Industrial Statistics	3
IET	3356	Quality Concepts and System Design	3
IET	4405	Principles of Operations Research	3
MGNT	2201	Introduction to Computer Applications	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	3205	Management Information Systems	3
MGNT	4115	Human Resources Management	3
MGNT	4125	Technology and Public Issues	3
MGNT	4145	International Management	3
MGNT	4151	Operations Management	3
MGNT	4596	Business Strategy	3
Management Elective: Select 1 additional MGNT course			3

Minor Requirements 15

Students in the Bachelor of Arts in Business Administration program are required to complete a minor in a non-technical area.

Free Electives	2
Degree Program Total	120

Requirements for the Bachelor of Science in Business Administration

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2000	Business Communication	3
MATH	1113	Pre-Calculus	4
MATH	2240	Survey of Calculus	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two courses in Laboratory Science	8
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ACCT	2101	Accounting I	3
ACCT	2102	Accounting II	3
ECON	2105	Macroeconomics	3
ECON	2106	Microeconomics	3
IET	2227	Industrial Statistics	3
IET	3356	Quality Concepts and System Design	3
IET	4405	Management Science	3
MGNT	2201	Introduction to Computer Applications	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	3205	Management Information Systems	3
MGNT	4115	Human Resources Management	3
MGNT	4125	Technology and Public Issues	3
MGNT	4135	Project Management	3
MGNT	4145	International Management	3
MGNT	4151	Operations Management	3
MGNT	4596	Business Strategy	3
Management Elective: Select 1 additional MGNT course			3

Business Track Requirements	15

Students in the Bachelor of Science in Business Administration program are required to complete one of the tracks listed below.

Free Electives	2
Degree Program Total	120

Management Track (12 credits): Select 4 courses from the list below

MGNT 3500	Database Applications
MGNT 4075	Healthcare Management
MGNT 4100	Business Systems Analysis and Design
MGNT 4140	Management of Networks and Telecommunications
MGNT 4185	Technology Management
MGNT 4195	Current Readings in Management of Technology
MGNT 490x	Special Topics
MGNT 3210	Professional Selling
MGNT 3224	Business Marketing
MGNT 3228	Market Research and Demand
MGNT 4103	Marketing Management

Management Information Systems Track (12 credits

CS 1113	Basic Programming (Visual Basic)
MGNT 3500	Database Applications
MGNT 4100	Business Systems Analysis and Design
MGNT 4140	Management of Networks and Telecommunications

Management of Operations and Technology Management Track (12 credits)

MGNT 4140	Management of Networks and Telecommunications
MGNT 4182	Technology Management
MGNT 4195	Current Readings in Management of Technology

Management Elective: Select one MGNT course numbered 3000 or higher.

Marketing Track (12 credits)

MGNT 3210	Professional Selling
MGNT 3224	Business Marketing
MGNT 3228	Market Research & Demand
MGNT 4100	Marketing Management

Directed Electives Track (12 credits)

With advisor approval, students may take four elective courses, three of which must numbered be above the 3000-level. Courses may include Management, Marketing and other disciplines.

NOTE: A 2.0 GPA in courses used in the major is required (excluding the international studies minor courses).

Minor in Business Administration

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)

Accounting Courses

ACCT 2101
Accounting I
3-0-3

A study of the underlying theory and application of financial accounting concepts.

ACCT 2102
Accounting II
ACCT 2101
3-0-3

A study of the underlying theory and application of managerial accounting concepts. Prerequisite:

Economics Courses

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.

Management, Marketing and Finance Courses

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 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 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.

MGNT 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.

MGNT 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.

MGNT 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.

MGNT 390x
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 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.

MKTG 4103
Marketing Management
Prerequisite: MGNT 3135
3-0-3

The marketplace has been transformed from 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.

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
Operations Management
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 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 490x
Special Topics
Prerequisite: Senior standing
1 to 5 hours
Special topics offered by the department on a demand basis.

Business Graduate Courses (MBA)

ACCT 6000	**Managerial Accounting**
MGNT 5653	**Financial Decision Making**
MGNT 5773	**Managerial Decision Making**
MGNT 5873	**Strategic Environment of Business**
MGNT 6001	**Management Communications**
MGNT 6005	**Managerial Economics**
MGNT 6015	**Technology and Innovation Management**
MGNT 6020	**R&D Management**
MGNT 6025	**Managing Professionals**
MGNT 6040	**Current Readings in Management of Technology**
MGNT 6050	**Project Management**
MGNT 6055	**Total Quality Management**
MGNT 6060	**Entrepreneurship**
MGNT 6065	**Issues in International Management**
MGNT 6070	**Employment and Labor Relations**
MGNT 6090	**Strategic Management**
MGNT 690x	**Special Topics**
MGNT 750x	**Independent Research**
OPSM 6005	**Service and Production Operations Management I**
OPSM 6006	**Service and Production Operations Management II**
OPSM 6025	**Purchasing Management**

Chemistry

Offering the Bachelor of Science in Chemistry

Chemistry

SPSU will begin offering a B.S. in Chemistry in 2007,
Pending Board of Regents and Faculty Approval

The Chemistry Program at Southern Polytechnic State University is part of the Department of Biology, Chemistry and Physics in the School of Arts and Sciences. Currently, a broad range of introductory and intermediate chemistry courses and laboratories are offered. A Bachelor of Science degree in Chemistry will be offered beginning fall 2007, pending Board of Regents approval.

The Faculty:

Jack Duff	Lecturer
Alan Gabrielli	Professor and Dean of Arts and Sciences
Rajnish Singh	Assistant Professor
Zvi Szafran	Professor and Vice President for Academic Affairs

Chemistry Courses

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.

Biochemistry Courses

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 390x
Special Topics
1 to 5 hours
Special topics selected by the department. Offered on a demand basis.

BIOC 490x
Special Topics
1 to 5 hours
Special topics selected by the department. Offered on a demand basis.

Civil Engineering Technology

Offering:

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

Civil Engineering Technology

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

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

In class, our wide range of courses enables you to choose a career in such areas as Environmental Control, Structures, Transportation, Geotechnical, or Surveying and Mapping. Working in teams, CET students put their technical and managerial skills to work on various projects, including the design, construction, operation, and maintenance of municipal facilities. Your collaboration is most intense on the senior capstone project, which gives you a taste of professional partnership from preliminary studies through site location to final design.

In recent years, starting annual salaries have typically been $35,000 to $45,000 and remain competitive. Such co-op positions as project management, field engineering, and computer-aided design can prepare you for work with consulting firms, state and local transportation departments, and companies that specialize in geotechnical engineering, structural engineering, environmental engineering, construction, and surveying. Our CET degree meets the educational requirement that allows you to seek licensure as a Professional Engineer in Georgia.

The Faculty:

Samuel J. Beadles	Professor
Daniel L. Branham	Lecturer
Thomas R. Currin	Professor
Mehrdad Mesbahi	Associate Professor
Ilseok Oh	Assistant Professor
Carlos A. Ortiz	Associate Professor
Nancy Turner	Instructor
Matthew M. Wilson	Associate Professor
Timothy W. Zeigler	Professor and Department Chair

The Program

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.

Requirements for the BS Civil Engineering Technology

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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		Any Two Lab Sciences	8
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
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2253	Calculus I (extra hour is applied to major courses)	4
MATH	2254	Calculus II	4
MATH	2306	Differential Equations	3
PHYS	2211K	Principles of Physics I	4
CE	3343	Fluid Mechanics	4
CET	1001	Orientation to CET Profession	1
CET	1002	Orientation to CET Computer Practices	1
CET	2160	Civil Graphics and Computer Aided Drafting	3
CET	2219	Strength of Materials	4
CET	3301	Soil Mechanics	4
CET	3302	Construction Materials	4
CET	3321	Transportation Systems	4
CET	3324	Project Cost Analysis	4
CET	3344	Fundamentals of Environmental Eng Tech	4
CET	3371	Structural Steel Design I	
	OR		
CET	3381	Reinforced Concrete Design I	3
CET	4480	Senior Project	4
CET	4444	Hydrology	4
ECET	3000	Electrical Principals (4)	
	OR		
MET	3400	Survey of Thermodynamics (3)	
	OR		
MET	3401	Thermodynamics I (3)	
ENGR	2214	Engineering Mechanics – Statics	3
ENGR	2215	Engineering Mechanics – Dynamics	2
CET Electives			11 or 12 hours
Degree Program Total			130 hours

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.

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.

CET Electives are any non-required 3000 or 4000 level CET or Surveying 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.

With focused, lab-based classes, students develop the critical thinking needed to work in this field. Using a variety of tools — GPS receivers, electronic distance meters, laser total stations, and micro-computers to name a few — students become adept at creating maps from field measurements, designing and laying out construction projects, and planning subdivision developments. Field exercises, which take place right on campus, help prepare you to work in the private sector, government and utilities, or engineering practices. The Surveying and Mapping degree meets the educational requirement that allows you to seek licensure as a Registered Land Surveyor (RLS) in Georgia and other states.

In recent years, starting annual salaries have typically been $35,000 to $45,000 and remain competitive. Approximately 75% of our graduates begin their careers in subdivision and boundary surveying, and eventually two-thirds of them own their own businesses.

Requirements for the Surveying and Mapping Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
SPCH	2400	Public Speaking	2
STS 2400	Science, Technology, and Society		2
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
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2253	Calculus I (extra hour is applied to major courses)	4
MATH	2254	Calculus II	4
MATH	2260	Probability and Statistics I	3
Math Elective			3
Area D		Any Two Lab Sciences	8
PHYS	1111K	Principles of Physics I	4
PHYS	1112K	Introductory Physics II	4
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
IT 1113	BASIC Programming		3
	OR		
CS 2123	C Programming		3
	OR		
CS 2143	FORTRAN Programming		3
CE	3343	Basic Fluid Mechanics	4
CET	1001	Orientation to CET Profession	1
CET	1002	Orientation to CET Computer Practices	1
CET	2160	Civil Graphics and Computer Aided Drafting	3
CET	2200	Introduction to Structures	4
CET	3321	Transportation Systems	4
CET	4444	Applied Hydrology	4
CET	3324	Project Cost Analysis	4
SURV	2221	Surveying I	4
SURV	3222	Surveying II	4
SURV	4410	Surveying Computations and Adjustments	4
SURV	3421	Geographic Information Systems I	4
SURV	4465	Legal Aspects of Land Surveying	4
SURV	4470	Land Development Design	4
SURV	4415	Geodetic Surveying Methods	4
SURV	4475	Land Surveying Practice	2
SURV		Elective	4
Free Elective			3

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	3222	Surveying II	4
SURV	4465	Legal Aspects of Land Surveying	4
SURV	4475	Land Surveying Practice	2
SURV	4470	Land Development Design	4
CET	4444	Hydrology	4
TOTAL			22-Hours

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: ENGR 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: ENGR 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
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 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 3371or CET 3381 or (MATH 2253 and SURV 3222)
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 ENGR 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 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 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 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 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 4444
Hydrology
Prerequisite: CET 3343
4-0-4

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 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 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 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.

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 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

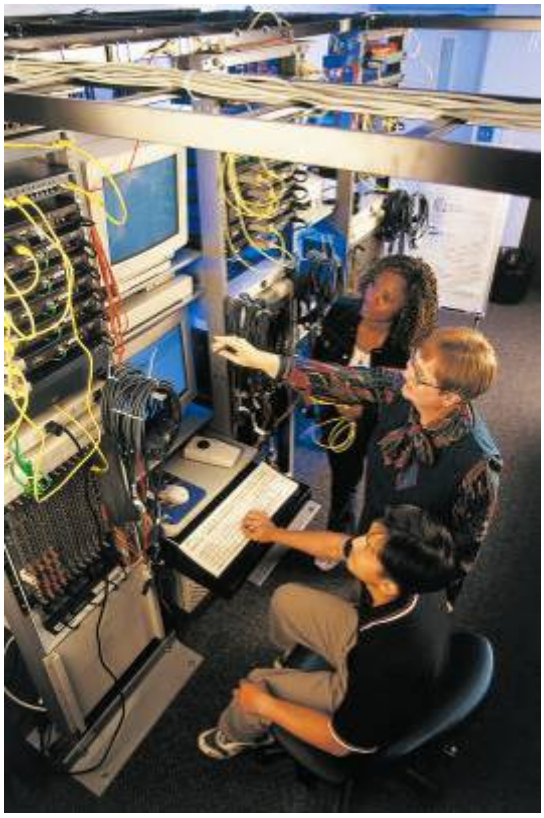
Legal research; boundary analysis; boundary survey project; office procedures; business practice.

SURV 4901-4904
Special Topics
Prerequisites: Senior standing, consent of the department head
1 to 4 hours

Computer Science

Offering:

The Bachelor of Science in Computer Science
The Bachelor of Arts in Computer Science



Computer Science

(Bachelor of Science and Bachelor of Arts Degrees Offered)

Why study Computer Science at SPSU?

What field of study has seen more technological developments that have become part of our daily lives in just a matter of the past few decades than any other? Developments such as the Internet and email, search engines, wi-fi, etc., virtually unknown a few decades ago, make computer science one of the strong contenders for this distinction!

Combining fundamental theory with hands-on lab work in current programming languages, the Computer Science degree gives students a breadth of knowledge -- of operating systems, architecture, networks, and databases -- in a high-tech environment. Our numerous labs are equipped with the latest technology, including a real-time lab with the most current commercial-grade software tools and an IT lab with its own server for management and IT courses. And in our classrooms, professors teach using networked computers and smart boards, and technologies that allow for interactive demonstrations of programs at work, and other innovative pedagogical techniques.

About the program

As preparation for diverse employment opportunities, the Computer Science program offers a wide range of Mathematics and Computer Science courses, such as Programming Language Concepts, Data Structures, and Algorithm Analysis. Students may elect to earn a Bachelor of Science degree in Computer Science, which offers a mix of rigor and exposure to current technologies, or the Bachelor of Art in Computer Science, which offers flexibility, e.g., with a minor in International Studies, since many opportunities are available with multinational corporations. For student convenience, many classes are offered in the evenings, especially as students make progress toward graduation.

The faculty

Each faculty member in Computer Science has his or her own specialty, from research to business applications. Our faculty members have completed research fellowships with the U.S. Air Force and other government labs, programmed business applications for Blue Cross Blue Shield, and developed and managed systems and software for IBM Corporation. They pass their expertise in the professional field along to their students, who go on to succeed professionally as well.

Patrick O. Bobbie	Professor
Venu Dasigi	Professor and Chair of Computer Science and Software Engineering
Abdullah Faruque	Associate Professor
Juan Carlos Guzman	Professor
Bob Harbort	Professor
Chih-Cheng Hung	Professor
Kai Qian	Professor
Orlando A. Karam	Assistant Professor
Briana B. Morrison	Assistant Professor
Michael G. Murphy	Professor and Dean, School of Computing and Software Engineering
Patricia H. Roth	Lecturer
John A. Rupf	Professor

Are there learning opportunities outside the classroom?

Computer science students at SPSU can participate in the Aerial Robotics Club on campus, which placed second in the 2001 international competition sponsored by the Association for Unmanned Vehicle Systems for an automatic pilot guiding program that was written for SPSU's aerial robotics machines. Students also compete in annual programming contests sponsored by the Association of Computer Machinery, a national professional organization with student chapters worldwide. Students have internship and co-op opportunities, as well.

What can I do with a Computer Science degree?

With a Computer Science degree, you are equipped to enter a variety of positions, from software development at a Fortune 500 company to game development, to just about anywhere your skills can take you – including winning an Oscar, as our alumni did in 2005! Graduates are often involved in software development, innovative applications and uses of computers, and new and improved solution techniques to hard problems. They gain many useful skills that are immediately applicable, but are well-founded in the fundamental concepts and are well on their way to lifelong learning in the rapidly changing technological workplace.

Will I find employment?

According to a recent report from the Bureau of Labor Statistics, the top two and five out of the top ten jobs with the fastest growth and highest median salaries are CS-related. Our close proximity to Atlanta opens up a world of internship, co-op, and full-time work opportunities to our students, as Atlanta is home to many major corporations that welcome SPSU students.

The Program:

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 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

Requirements for the Computer Science Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2260	Probability and Statistics I	3
MATH	2345	Discrete Math	3
MATH	2253	Calculus I	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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	See your advisor before you select science courses		8
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
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
CS	1002	Introduction to the Computing Disciplines	2
CS	2223	Digital Design	3
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
CS	4894	CS Capstone	4
SWE	2642	Professional Practices and Ethics	2
SWE	4624	Software Engineering	4
Approved Upper level Math Elective (Math 2306, MATH 2335, or 3000 level or above)			3-4*
Approved Science Elective			4
Approved Science or Math Elective			3-4
Upper-level CS Electives (or Approved UL SWE/IT Electives)			7-8
Free Electives			2-5 hours

* MATH 1111 may not be used as free elective hours.

Degree Program Total 122

Requirements for the Computer Science Bachelor of Arts

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2253	Calculus I (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2345	Discrete Math	3
MATH	2260	Probability and Statistics I	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
Area C	Group 1	Take One Course From the Literature Group	3
Area C	Group 2	Take a foreign language	3
Area D	See your advisor before you select science courses		8
Approved Science Elective			4
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
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
CS	1002	Introduction to the Computing Disciplines	2
CS	2223	Digital Design	3
CS	3123	Programming Language Concepts	3
CS	3223	Computer Architecture	3
CS	3243	Operating Systems	3
CS	3424	Data Structures	4
CS	4894	CS Capstone	4
SWE	2642	Professional Practices and Ethics	2
SWE	4624	Software Engineering	4
Upper-Level CS Elective (or Approved UL SWE/IT Elective)			3-4
International Studies Minor			15
Free Electives			7-8
Degree Program Total			**120**

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

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 classes included in this program are:

SWE	1301
SWE	1302
CS	3424
CS	3153
SWE	4624

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 (or concurrently) 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 object-oriented programming. Instruction centers on an overview of programming, problem-solving, and algorithm development. Particular topics include primitive data types, arithmetic and logical operators, selection and repetition structures, interactive user input, using and designing basic classes, single dimension arrays with searching and sorting, and two-dimensional arrays. Programming assignments focus on techniques of good programming style including proper documentation. The student is taught to efficiently design, code, and debug problem solutions. A Windows environment is used in the closed lab.

CS 1302 Computer Science II
Prerequisite: CS 1301 and CS 1002
3-2-4

The second course in computer science provides coverage of more advanced topics of object-oriented programming. This includes the use of static variables and classes, multi-dimensional arrays, inheritance and polymorphism, text files and exception handling, recursion, and parameterized types. Elementary data structures (linked lists, stacks, and queues) are introduced to solve application problems. Graphical user interfaces and event driven programming are also introduced. Students must continue to use good programming style including proper documentation. Students use the Linux operating system in the closed lab.

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.

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 4133 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 4283 Real-Time Systems
Prerequisite: CS 3243
3-0-3

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 4353 Computer Game Design & Development
Prerequisite: CS 3424
3-0-3

This course focuses on 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 simulations, and the evaluation of human play environments are incorporated into the course.

CS 4363 Computer Graphics and Multimedia
Prerequisite: CS 3424
3-0-3

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 4553 Expert Systems
Prerequisite: SWE 4624
3-0-3

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
CS 5153 Database Systems
CS 5183 Object-Oriented Programming
CS 5223 Computer Architecture
CS 5243 Operating Systems
CS 5423 Mathematical Structures for Computer Science
CS 6023 Research Methods and Presentations
CS 6103 Discrete -Time Signals and Systems
CS 6123 Theory and Implementation of Programming Languages
CS 6143 Enterprise Application Development
CS 6153 Advanced Database Systems
CS 6163 Information Retrieval and Search Engines
CS 6223 Advanced Computer System Architecture
CS 6243 Advanced Concepts in Operating Systems
CS 6263 Computer Networks
CS 6283 Real-Time Systems
CS 6293 Information Security: Implementation and Application
CS 6323 Human Factors
CS 6353 Computer Graphics and Multimedia
CS 6413 Theory of Computation
CS 6423 Algorithmic Processes
CS 6453 Simulation and Modeling
CS 6523 Survey of Artificial Intelligence
CS 6563 Digital Image Processing and Analysis
CS 6593 Selected Topics in Artificial Intelligence
CS 6703 Independent Study
CS 6901-6903 Special Topics
CS 7803 Master's Thesis

Construction Engineering

Offering the Bachelor of Science in Construction Engineering

Construction Engineering

(Bachelor of Science Degree Offered)

The Construction Engineering program is part of the Civil Engineering Technology department in the School of Architecture, Civil Engineering Technology and Construction. In this major the traditional areas of civil engineering and construction are combined to produce graduates who are able to work effectively in all aspects of the construction industry.

Construction Engineering requires rigorous training in basic engineering principles along with the development of skills in the areas of planning and management of construction projects and the associated systems and resources. Graduates in the area of Construction Engineering will be required to master technical elements and to demonstrate particular competence in the areas of communication, fiscal management, and project control. The broad-based background is tailored to develop professionals who will be able to move between the technical and managerial aspects of construction projects and to serve in key leadership positions within the construction industry.

Graduates can look forward to employment by construction companies; city and county construction departments; state and federal transportation organizations (such as the Georgia Department of Transportation); and civil engineering consulting and design firms. Graduates have the qualifications to enter careers in construction related fields as well including construction engineering design, construction operations and management, construction planning and cost estimating. Typical job titles for graduates may include construction engineer, project engineer, project supervisor, construction manager, and design engineer.

The Construction Engineering curriculum offers a balance of coursework in engineering analysis, engineering design, construction practice, and construction management. Graduates of the program are expected to be able to:

1. Create, design, analyze and improve construction processes, devices or systems.
2. Apply modern construction practices and materials to construction designs.
3. Apply and interpret appropriate software in developing construction engineering problems.
4. Be capable of professional registration nationwide.
5. Be capable of pursuing varied graduate education in engineering.
6. Recognize careers in the construction engineering field and be prepared for advancement in the industry.

Faculty: Thomas Currin, Program Coordinator

Requirements of the Bachelor of Science in Construction Engineering

(Subject to Faculty Approval)

CHEM	1211K	Principles of Chemistry I	4
CHEM	1212K	Principles of Chemistry II	4
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	2253	Calculus I	4
MATH	2254	Calculus II	4
MATH	2306	Differential Equations	3
PHYS	2211K	Principles of Physics I	4
PHYS	2212K	Principles of Physics II	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
CE	1000	Orientation to Construction Engineering	1
CE	3301	Soil Mechanics	4
CE	3343	Fluid Mechanics	3
CE	3410	Fundamentals of Environmental Engineering	4
CE	4410	Hydrology	4
CNE	4000	Senior Project in Construction Engineering	3
CNST	3110	Building Techniques and Methods I	3
CNST	3160	Building Techniques and Methods II	3
CNST	3420	Construction Estimating II	4
CNST	4510	Scheduling	3
CNST	4560	Construction Project Management	3
CNST	4710	Construction Safety	4
CNST	4760	Construction Law	3
ENGR	2160	Engineering Graphics/CAD	3
ENGR	2214	Engineering Mechanics—Statics	3
ENGR	2215	Engineering Mechanics—Dynamics	2
ENGR	3131	Strength of Materials	4
ENGR	3310	Data Collection and Analysis	4
ENGR	3360	Project Cost Analysis	4
SURV	2221	Surveying I	4
Construction Engineering Specialty			8
		Two courses numbered above 3000 with a CE or CNE or ENGR prefix selected with the approval of the department	

Degree Program Total 129

The Construction Engineering degree requires a grade of "C" or better in all CE, CNE, and ENGR courses applied to degree requirements.

Civil and Construction Engineering Courses

CNE 1000
Orientation to Construction Engineering
1-0-1

Introduction to the Construction Engineering field; career opportunities; educational spectrum; and professional options. Includes program policies and expectations for student majors.

CE 3301
Soil Mechanics

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. Prerequisites: CHEM 1211K, ENGR 3131.

CE 3320
Structural Analysis
4-0-4

Structural loads and types of structures, analysis of determinate and indeterminate structures and deflection of beams, frames, and trusses. Prerequisite: ENGR 3131

CE 3330
Transportation Systems
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. Prerequisite: SURV 2221.

CE 3340
Reinforced Concrete Design I
2-3-3

ACI design procedures for reinforced concrete beams, columns, footings, slabs and other members. Introduction to masonry design. Prerequisite: CE 3320.

CE 3343
Fluid Mechanics
3-0-3

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. Prerequisites: MATH 2254, ENGR 2214

CE 3350
Structural Steel Design I
2-3-3
AISC design procedures for steel beams, joints, girders, columns, base plates, and connections. Prerequisite: CE 3320.

CE 3410
Fundamentals of Environmental Engineering
3-3-4

A study of the basic unit operations of Environmental Engineering 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. Prerequisites:
CE 3301, CHEM 1211K.

CNE 390x

Special Topics in Construction Engineering
Special topics offered by the program on a demand basis. Prerequisites: Junior standing, consent of the Department Chair. 1 to 4 hours.

CE 4330
Highway Design
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. Prerequisite: CE 3330.

CE 4410
Hydrology
4-0-4

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. Prerequisite: CE 3410.

CNE 4480
Senior Project
2-3-3

This course is designed to be the culmination of the undergraduate construction engineering education. Under the guidance of a 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 by a panel of faculty and students.

Engineering Courses

EG 2160
Engineering Graphics
0-6-3

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.)

ENGR 2214
Engineering Mechanics – Statics
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. Prerequisites: PHYS 2211K (or concurrent enrollment)

ENGR 2215
Engineering Mechanics – Dynamics
2-0-2

A study and mathematical modeling 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. Prerequisite: ENGR 2214

ENGR 3131
Strength of Materials
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. Prerequisites: ENGR 2214, MATH 2254

ENGR 3310
Data Collection and Analysis in Engineering
3-3-4

This course combines the elements of proper engineering data collection 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. Prerequisites: MATH 2254.

ENGR 3360
Project Cost Analysis
4-0-4

A study of the project cost measurement and analysis techniques unique to the 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. Prerequisite: (ENGR 3340 or ENGR 3350),MATH 2253.

Construction Courses

For a full list of Construction Management courses, see the Construction Management section of the catalog.

CNST 3110
Building Techniques and Methods I
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. Prerequisite: ENGR 1210.

CNST 3160
Building Techniques and Methods II
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. Prerequisite: ENGR 1210.

CNST 3420
Construction Estimating II
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. Prerequisite: ENGR 3360.

CNST 4510
Scheduling
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. Prerequisite: ENGR 3360.

CNST 4560
Construction Project Management
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. Prerequisite: CNST 3160

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
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. Prerequisite: CNST 4560

Construction Management

Offering:

The Bachelor of Science in Construction Management
Professional Certificate in Project Management,
Professional Certificate in Land Development
Professional Certificate in Specialty Construction
On- Line Professional Certificate in Specialty Construction
Minor in Construction Management

Construction Management

(Bachelor of Science Degree Offered)

M^4 +T=success

To succeed, construction professionals must manage money, materials, manpower, machinery, and time as effectively as possible. At Southern Polytechnic, students master these skills in a degree program that makes the most of their schedules and budgets.

As Georgia's senior accredited construction degree program, we cover a broad range of topics, offer morning, afternoon and evening courses, and use flexible formats. Hands-on learning and our solid reputation make our graduates market-ready for one of the nation's largest industries and one of the region's highest growth professions. In the Southeast, the drive for growth has led construction firms to branch out into new market segments by focusing on the education, health care, water, waste, and transportation markets. To compete in this booming industry, aspiring construction professionals increasingly turn to Southern Polytechnic's Bachelor of Construction Management to develop the business skills needed to complete projects on time and within budget.

What is Construction Management?

Key construction management skills include scheduling, estimating and project management. These skills are utilized during the planning, design and construction of projects from inception to completion and work to control cost, time and quality, based on given drawings and specifications.

The Construction Management B.S. Degree program offers the following concentrations:

Project management

Land development

Specialty (MEP) construction.

We also offer a minor in Construction Management

What can I do with a Construction Management Degree?

Construction Management graduates work in various organizations including, but not limited to: general contracting firms, developers, specialty contractors, Fortune 500 companies, banks, highway construction and others.

Typical job titles for Construction Management graduates are:
Construction Manager
Project Engineer
Project Manager
Estimator
Owner/Representative
Office Engineer

Our department's growing reputation outside the U.S. attracts a high proportion of international students, creating a multi-ethnic environment that reflects the increasingly diverse workplace. Drawing on these varied backgrounds, our students learn to look at challenges from many different angles and to use ingenuity in targeting solutions with the greatest value.

Construction is 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.

The Faculty

Our faculty members belong to numerous professional organizations including the ABC, AGC, AIC, ASCE, ASEE, ASHRAE, CMAA, GUCA, MECA, NAHB, and NECA. Many students belong to student chapters of the above organizations, enabling virtually all graduates to find employment prior to graduation. The estimated starting salary for B.S. Construction graduates is $45,000, based on a 2001-2002 annual salary survey. For more information on our courses and industry affiliations, visit www.cnst.spsu.edu.

Our Award-winning faculty includes Dr. Khalid Siddiqi, recipient of the Outstanding Educator Award (2005) from associated Schools of Construction (ASC), Dr. Gouranga Banik, ASC's Mational Teaching Award recipient in 2002, and Dr. Brian Moore, editor of the ASC Journal.

Faculty

Gouranga C. Banik	Associate Professor
Wilson C. Barnes	Professor
Zuhair El-Itr	Associate Professor
Javier Irizarry	Assistant Professor
Shariar Makarechi	Assistant Professor
John Mench	Lecturer
Brian Moore	Associate Professor
Jim Mullinax	Lecturer
David R. Pierce	Professor
Khalid M. Siddiqi	Department Chair and Associate Professor

Requirements for the Construction - Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
MATH	1113	Pre-calculus	4
MATH	2240	Survey of Calculus I	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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		Any Two Lab Sciences (PHYS 1111K recommended)	8
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
ACCT	2101	Accounting I	3
ECON	1101	Introduction to Economics – **See Note 1**	3
PHYS	1111K	Introductory Physics I – **See Note 2**	4
CET	2200	Introduction to Structures	4
CNST	2000	Construction Graphics	3
CNST	1000	Orientation to Construction and Development	2
CNST	3000	Computer Applications in Construction	2
CNST	3110	Building Techniques and Methods I	4
CNST	3160	Building Techniques and Methods II	3
CNST	3180	Building Techniques and Methods III	4
CNST	3410	Construction Estimating I	3
CNST	3500	Building Codes	2
CNST	4510	Scheduling	3
CNST	4710	Construction Safety	4
CNST	4760	Construction Law	3
CNST	4900	Capstone Project	3
MGNT	3145	Legal Environment and Change	3
MGNT	3205	Management Information Systems	3
MGNT	3105	Management and Organizational Behavior	3
MGNT	3145	Legal Environment	3
SURV	2200	Construction Measurements	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
CNST	3260	Applied Structures II	3
CNST	3420	Construction Estimating II	4
CNST	3620	Construction Finance and Feasibility	4
CNST	4560	Construction Project Management	3
CNST	4800	Construction Process Simulation	3

Development Concentration

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

Specialty Concentration

CNST	3280	MEP Codes and Loads	4
CNST	3480	Construction Estimating IV	4
CNST	4560	Construction Project Management	3
CNST	4580	Specialty Project Management	3
CNST	4680	Energy Conservation	4
CNST	4800	Construction Process Simulation	

Note: Specialty Prerequisites for CNST 4800 are CNST 3410 and 3480

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	4511	Construction Scheduling Software	2
CNST	4560	Construction Project Management	3
CNST	4710	Construction Safety	4
CNST	4760	Construction Law	3

Certificate Programs in Construction Management
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	3
CNST	3000	Computer Application in Construction	2
CNST	3110	Building Techniques and Methods I	4
	OR		
CNST	3160	Building Techniques and Methods II	3
CNST	4560	Construction Project Management	3

Elective Courses: (9 semester hours required)

CNST	3410	Construction Estimating I	3
CNST	3420	Construction Estimating II	4
CNST	4510	Scheduling	3
CNST	4710	Construction Safety	4
CNST	4760	Construction Law	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	3
*CNST	3310	Land Development Planning	3
CNST	3710	Site Planning	4
CNST	4570	Land Development Process I	4

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

Elective Courses: (7 semester hours required)

CNST	2000	Construction Graphics	3
CNST	3110	Building Techniques & Methods I	4
CNST	3410	Construction Estimating I	3
CNST	3430	Construction Estimating III	3
CNST	4510	Scheduling	3
CNST	4620	Land Development Process II	4
CNST	4770	Land Development Law	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	4
CNST	3280	Mechanical, Electrical and Plumbing Codes & Loads	4
CNST	3480	Estimating IV	4
CNST	4580	Specialty Project Management	3
CNST	4680	Energy Conservation	4

Elective Courses: (2 semester hours required)

CNST	3500	Building Codes	2
CNST	4510	Scheduling	3
CNST	4710	Construction Safety	4
CNST	3620	Construction Finance and Feasibility	4

On online version of this certificate is also available.

Construction Course Descriptions

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
Introduction to Development
Prerequisite: CNST 1000
3-0-3

The course provides an overview of the land development process and provides a foundation for the advanced land development courses. The course focuses on the steps in planning and carrying out the land development project and on the legal issues encountered in the land development profession. The course includes lectures, readings from the texts and closed library reserves, class discussion, problems, exercises and student presentations.

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

The course provides an overview of site planning and the project approval process. The course focuses on the tools needed and the issues encountered in site selection, assessment and planning and on creating and obtaining government approval of the site plan. The course includes lectures, readings from the texts and closed library reserves, class discussion, problems, exercises and a project submittal. Students prepare detailed site analyses and land plans that are presented to the class at the end of the semester.

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 4480
Design/Build MEP Systems
2-2-3
Study of Design build MEP systems from design/build delivery perspective. Topics will include Preliminary design and construction process of different types of air conditioning, heating, plumbing, fire protection, electrical power, electrical lighting and building control systems. Review and compiling of quantities from construction drawing will be integrated in the course. Way and means to incorporate Leadership in Energy Efficient Design (LEED) principles in design and construction process. Introduce value engineering principles for MEP systems.

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

The course provides an overview of feasibility analysis and financing of the land development project. The course focuses on market and feasibility analysis required to demonstrate the viability of the development. Students produce feasibility studies that are presented to the class at the end of the semester.

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

The course provides an overview of the development process from project construction through the management and sale of the property. For commercial income producing properties, the course focuses on property management during the holding period and on marketing the project through leasing and eventual sale. The course also includes an overview of the residential subdivision development process from development planning through marketing of lots and homes. Financial management, marketing, management of the regulatory process, project management and development operations are emphasized. The course includes lectures, readings from the texts, class discussion, problems and exercises.

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

The course provides an overview of land development law. The course covers land and its elements, fixtures, easements, land titles and interests, land acquisition and assembly, land and legal descriptions, deeds and conveyances, real estate brokerage, sale contracts and leases, mortgages, real estate closing, evidence of title, real estate taxes and insurance, environmental liabilities, landlord and tenant law, discrimination, land use controls and specific laws and legal practices relevant to planned unit developments, condominiums, cooperatives, townhouses and business parks. The course includes lectures, readings from the text and case studies, class discussion and student presentations and problems.

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
2-2-3

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 Courses

CNST 5030 Descriptive Structural Systems
CNST 6000 Information Methods
CNST 6100 Construction Law: Contracts and Claims
CNST 6110 Commercial Construction Transactions
CNST 6120 Dispute Resolution
CNST 6130 Case Studies in Construction
CNST 6200 Strategic Bidding and Estimating
CNST 6310 Advanced Scheduling and Integrated Controls
CNST 6320 Construction Information Systems
CNST 6330 Advanced Operations: Constructability, Value Engineering, Productivity
CNST 6410 Building Failures and Defective Work
CNST 6420 Tall Buildings
CNST 6430 Automation and Robotics
CNST 6510 Marketing of Construction Services
CNST 6520 International Construction
CNST 6530 Construction Markets
CNST 6540 The Construction Company
CNST 6600 Construction Risk Analysis and Control
CNST 6800 Construction Seminar
CNST 6901-6904 Special Topics
CNST 7701-7704 Master's Project
CNST 7801-7804 Master's Thesis

Electrical and Computer Engineering Technology

Offering:

The Bachelor of Science in Electrical Engineering Technology
The Bachelor of Science in Computer Engineering Technology
The Bachelor of Science in Telecommunication Engineering Technology

Electrical Engineering Technology

(Bachelor of Science Degrees Offered in Electrical Engineering, Computer Engineering, and Telecommunications Engineering Technology)

Your challenge: Create a computer-aided testing system. Your solution: Write software, design circuits, and demonstrate how the two work together. Your result: Technological expertise that translates into high-powered careers.

Highly ranked and nationally respected, our three engineering technology programs provide plenty of hands-on learning. Flexible schedules give you the option of attending day or night, and our faculty bring their consulting experience into every lab. In small classes and on team projects, you learn the practical skills needed in many careers, from design and test engineering to research and development, sales, management, and telecommunications network administration. Engineering technologists could fill four out of every five engineering positions in the U.S., and industry and educational leaders consider our graduates among the best.

For the first two and a half years, all students take a common curriculum of fundamentals, circuits, electronics, and data communication, as well as calculus and physics. Courses in speech, technical writing, and composition help develop your communication skills, which are key to advancement. Our Industry Advisory Board, which includes representatives from BellSouth, Georgia Power, Home Depot, and Lockheed, among others, helps keep our programs in line with industrial innovation. And student professional and honors organizations offer design competitions and networking opportunities that are both fun and practical.

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 and Computer Engineering Technology Department at Southern Polytechnic State University offers many diverse areas of study including communications, power, audio, digital design, controls, and computer design. Programs of study can lead to any one of the following degrees:

Bachelor of Science in Electrical Engineering Technology

Electronics has given birth to an industrial giant. Computers, medical electronics, automation, communications, instrumentation, radar, and robotics are but a few of the fields based on electronics. This demand has created a need for electrical engineering technology graduates in all phases of development, design, production, maintenance, and troubleshooting. Graduates of the bachelor degree program in electrical engineering technology are meeting this need.

Bachelor of Science in Computer Engineering Technology

The development of the microcomputer has created a need for engineering technology graduates 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.

Bachelor of Science in Telecommunications Engineering Technology

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 the demand.

The Faculty:

Austin B. Asgill	Professor
Charles L. Bachman	Professor and Department Chair
Lance C. Crimm	Associate Professor
Kim Davis	Associate Professor
Charles Duvall	Assistant Professor
Thomas Fallon	Associate Professor
Pamela S. Frinzi	Associate Professor
William R. Hodges	Associate Professor
L. Brent Jenkins	Associate Professor
Scott Larisch	Assistant Professor
Andrew Lyke	Assistant Professor
Walter E. Thain Jr.	Associate Professor
Scott J. Tippens	Professor
Jeff H. Wagner	Assistant Professor
Daren R. Wilcox	Assistant Professor
Omar Zia	Professor

The Programs:

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:

Biomedical					
	BMET 3220	BMET 4250	ECET 2200	ECET 3210	ECET 3230
	ECET 4210	ECET 4220	ECET 4230	ECET 4240	
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	

Requirements for the Electrical Engineering Technology - Bachelor of Science

CHEM	1211K*	Principles of Chemistry I	4
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2306	Ordinary Differential Equations	3
MATH	2253	Calculus I (extra hour is applied to area F)	4
PHYS	2211	Principles of Physics I*	4
PHYS	2212	Principles of Physics II*	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
TCOM	2010	Technical Writing	3
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 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
ECET	1000	Orientation	2
ECET	1011	Fundamentals	3
ECET	1100	Circuits I	4
ECET	1200	Digital I	4
ECET	2110	Circuits II	4
ECET	2300	Electronics I	4
ECET	2210	Digital II	4
ECET	2310	Electronics II	4
ECET	3220	Digital III	4
ECET	3400	Data Communications	4
ECET	3600	Test Engineering	4
ECET	3410	High Frequency Systems	4
ECET	3500	Survey of Electric Machines	4
ECET	3620	Signals and Systems Analysis	4
ECET	4610	Introduction to Control Systems	4
ENGR	1210	Survey of Engineering Graphics	2
EET Electives			13
Degree Program Total			**130**

* PHYS 1111K and PHYS 1112K may be substituted for PHYS 2211K and 2212K.

NOTES: EET majors are required to earn a "C" or better in their ECET courses.

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.

Requirements for the Computer Engineering Technology - Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2253	Calculus I (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2335	Numerical Methods I	3
MATH	2306	Ordinary Differential Equations	3
PHYS	2211	Principles of Physics I	4
PHYS	2212	Principles of Physics II	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
TCOM	2010	Technical Writing	3
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 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
ECET	1100	Circuits I	4
ECET	1000	Orientation	2
ECET	1011	Fundamentals	3
ECET	1200	Digital I	4
ECET	2110	Circuits II	4
ECET	2300	Electronics I	4
ECET	2210	Digital II	4
ECET	2310	Electronics II	4
ECET	3220	Digital III	4
ECET	3400	Data Communications	4
ECET	3600	Test Engineering	4
ECET	3410	High Frequency Systems	4
ECET	3701	Embedded PC's	4
ECET	3810	Applications of C++, JAVA and HTML	3
ECET	4610	Introduction to Control Systems	4
ENGR	1210	Survey of Engineering Graphics	2
CpET Electives			15
Degree Program Total			130

NOTE: CpET majors are required to earn a "C" or better in their ECET courses.

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

Requirements for the Telecommunications Engineering Technology - Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2260	Probability and Statistics	3
MATH	2253	Calculus I (extra hour is applied to area F)	4
MATH	2306	Ordinary Differential Equations	3
PHYS	2211	Principles of Physics I*	4
PHYS	2212	Principles of Physics II*	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
TCOM	2010	Technical Writing	3
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 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
ECET	1100	Circuits I	4
ECET	1000	Orientation	2
ECET	1011	Fundamentals	3
ECET	1200	Digital I	4
ECET	2110	Circuits II	4
ECET	2300	Electronics I	4
ECET	2210	Digital II	4
ECET	2310	Electronics II	4
ECET	2800	Introduction to Telecommunications	3
ECET	3400	Data Communications	4
ECET	3410	High Frequency Systems	4
ECET	3810	Applications of C++, JAVA and HTML	3
ECET	4820	Communications Networks and the Internet	4
ECET	4830	Telecommunications Management	4
ECET	4840	Advanced Telecommunications	4
ECET	4850	Telecommunications Project	4
ENGR	1210	Survey of Engineering Graphics	2
MGNT	3105	Management and Organizational Behavior	3
MGNT	4135	Project Management	3
TCET Electives			6

Degree Program Total 130

* PHYS 1111K and PHYS 1112K may be substituted for PHYS 2211K and 2212K.

NOTE: TCET majors are required to earn a "C" or better in their ECET courses.

Electrical and Computer Engineering Technology Courses

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 op-amp 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
ECET 6002 Programmable Devices
ECET 6003 Advanced Test Engineering
ECET 6004 System Engineering
ECET 6100 Discrete -time Signals and Systems
ECET 6101 Digital Signal Processing
ECET 6102 Mechatronics
ECET 6201 Advanced Digital Design
ECET 6202 Embedded PC Systems
ECET 6203 Topics in Machine Intelligence
ECET 6204 Networked Embedded PCs
ECET 6300 Telecommunications Networking
ECET 6301 Telecommunications
ECET 6302 Digital Communication Networks
ECET 6303 Wireless Communication Systems
ECET 6401 Linear Control System Analysis and Design
ECET 6402 Power Flow Studies and Fault Analysis
ECET 6403 Applications of Power Electronics in Electric Drive Systems
ECET 6704 Project Proposal
ECET 6901-6905 Special Topics
ECET 7504 Research
ECET 7704 Project

Engineering

Offering:

Bachelor of Science Degrees
Master of Science Degrees

Engineering

(Bachelor of Science and Master of Science Degrees Offered)

Southern Polytechnic State University offers a variety of engineering programs, including Construction Engineering and Software Engineering at the undergraduate level, and Software Engineering and Systems Engineering at the Masters level. Individuals interested in these programs should see the appropriate sections of this catalog.

Courses listed in this section of the catalog carry the ENGR prefix, are general in nature, and are taken by more than one engineering or engineering technology major. Courses specific to individual majors may be found in the sections of the catalog listing the specific programs.

Engineering Courses

ENGR 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.)

ENGR 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.

ENGR 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 according to the American National Standards Institute.

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.

ENGR 3101
Fluid Mechanics
Prerequisites: MATH 2254, ENGR 2214.
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. Text is Fluid Mechanics by Y. Cengel and J. Cimbala.

ENGR 3122
Engineering Mechanics – Dynamics
Prerequisite: ENGR 2214
2-0-2

A study and mathematical modeling 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. Text is Engineering Mechanics: Dynamics by R.C. Hibbeler.

ENGR 3131
Strength of Materials
Prerequisites: ENGR 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. Text is Mechanics of Materials by James M. Gere.

ENGR 3310
Data Collection and Analysis in Engineering
Prerequisites: MATH 2254
3-3-4

This course combines the elements of proper engineering data collection 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.

ENGR 3320
Structural Analysis
Prerequisite: ENGR 3131
4-0-4

Structural loads and types of structures, analysis of determinate and indeterminate structures and deflection of beams, frames, and trusses.

ENGR 3360
Project Cost Analysis
Prerequisite: (ENGR 3340 or ENGR 3350), MATH 2253
4-0-4

A study of the project cost measurement and analysis techniques unique to the 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.

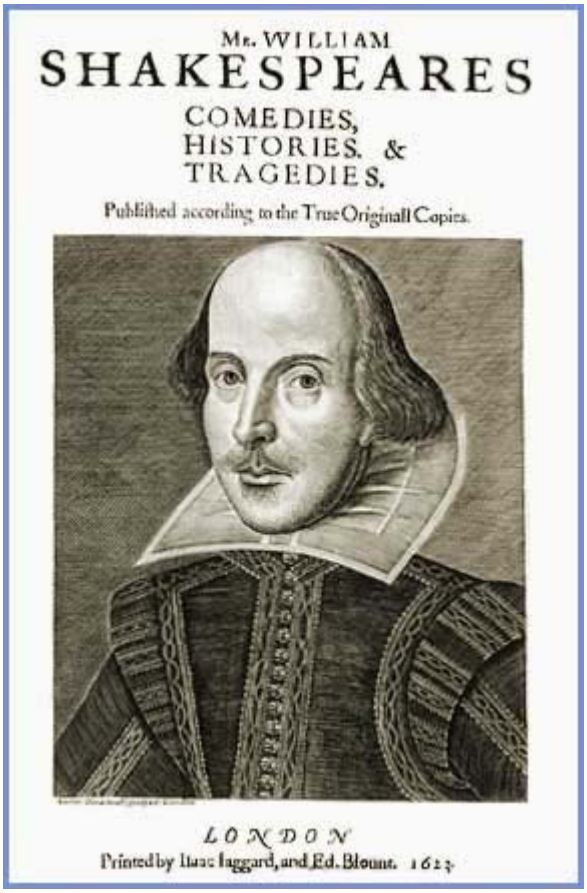
ENGR 3410
Fundamentals of Environmental Engineering
Prerequisites: CE 3301, CHEM 1211K
3-3-4

A study of the basic unit operations of Environmental Engineering 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.

English

Offering:

The Bachelor of Arts in English and Professional Communication



English

(Bachelor of Arts in English and Professional Communication Degree Offered)

Our project-driven courses challenge students to implement real-world applications in nearly every class. Our curriculum is also periodically reviewed and modified to reflect the changing needs of employers and the professional community. Specialized coursework and individual attention allow graduates to begin work immediately, satisfying the demand for professionals who can communicate technical, international, scientific, and computer-related information to both technical and non-technical users.

The required technical and professional communication courses equip students with the most advanced communication skills in writing, editing, graphics, information design and collaboration. In addition, students study classical rhetoric, literature, develop high-level computer skills, and produce a portfolio that demonstrates their communication proficiency to potential employers. Students choose from a wide variety of courses in one of three degree concentrations: Professional Writing and Communication, Digital Media and Graphics, and Information Design. Three different degree concentrations allow students to customize their degrees to suit their career goals.

Specialized courses in science, environmental and proposal writing, journalism, and professional editing give graduates the tools they need to be successful as professional writers or editors.

The Faculty:

Carol Barnum	Professor
Terry Carter	Assistant Professor
Beth Farber	Lecturer
Richard Hahn	Lecturer
Kim Haimes-Korn	Associate Professor
Jack Haley	Instructor
Keith B. Hopper	Associate Professor
John Lindsay	Instructor
Monique Logan	Instructor
Mark Nunes	Associate Professor and department chair
Betty Oliver	Professor
Iraj Omidvar	Assistant Professor
Jeffrey Orr	Instructor
Ann Parker	Instructor
Nancy L. Reichert	Associate Professor
Michele Shauf	Assistant Professor
Cheryl Shinall,	Instructor
Herbert J. Smith	Associate Professor
Charlotte Stephenson	Instructor
Mark K. Stevens	Associate Professor
Thomas Wiseman	Associate Professor

The Bachelor of Arts in English and Professional Communication is 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)
- A group of major courses
- 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 major courses.

Requirements of the Bachelor of Arts in English and Professional Communication

MATH	1111	College Algebra		3
MATH	1113	Pre-Calculus		4
SPCH	2400	Public Speaking		2
STS	2400	Science, Technology and Society		2
Area	C2	Course in Art and Culture		3
Area	D	Two Courses in Laboratory Science		8
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
ENGL	1101	Composition I		3
ENGL	1102	Composition II		3
ENGL	3030	English Grammar for Professional Writers		3
TCOM	2000	Business Communication		3
TCOM	2010	Technical Writing		3
TCOM	2020	Foundations of Technical Communication		3
TCOM	2030	Research in Technical Communication		3
TCOM	2060	International Technical Communication		3
TCOM	4030	Foundation of Graphics		3
TCOM	4100	Small Group Communication		3
TCOM	4160	Rhetoric: History, Theory and Practice		3
TCOM	4800	Project Portfolio		3
Literature Electives: Take any three of the following courses				9
	ENGL	2110	World Literature	
	ENGL	2120	British Literature	
	ENGL	2130	American Literature	
	ENGL	2141	Western Literature I	
	ENGL	2142	Western Literature II	
	ENGL	2300	African-American Literature and Culture	
Technical Communication Electives: Take any ten of the following courses				30
(A concentration in International Studies may be substituted for 15 of these credits)				
	ARTS	2010	Introduction to Drawing	
	ARTS	3000	Visual Thinking	
	STS	4000	International Issues in Science and Technology	
	STS	4400	Topical Studies in Science and Technology	
	TCOM	2040	Tools for Technical Communicators	
	TCOM	3010	Science Writing	
	TCOM	3015	Environmental Writing	
	TCOM	3020	Proposal Writing	
	TCOM	3030	Instructional Design	
	TCOM	3040	Writer's Workshop	
	TCOM	3045	Fundamentals of Information Design	
	TCOM	3050	Journalism	
	TCOM	390x	Special Topics	
	TCOM	4035	Fundamentals of Website Design	
	TCOM	4040	Advanced Tools for Technical Communicators	
	TCOM	4045	Foundations of Multimedia	
	TCOM	4050	Advanced Graphics Tools for Technical Communicators	
	TCOM	4070	User Documentation	
	TCOM	4130	Online Documentation	
	TCOM	4170	Video Production	
	TCOM	4600	Independent Study	
	TCOM	4700	Internship	
Free Electives				11 credits
Degree Program Total				120 credits

English Courses

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 course.

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. Prerequisite: ENGL 1102

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. Prerequisite: ENGL 1102

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. Prerequisite: ENGL 1102

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. Prerequisite: ENGL 1102

ENGL 2300
African-American Literature and Culture
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. 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

ENGL 3030
English Grammar for Professional Writing
3-0-3

The syntax of modern English grammar and the study of levels of correctness in
Contemporary Standard English for effective writing. Prerequisite: ENGL 1102

ENGL 490x
Special Topics
Special topics in literature. Offered by the department at its discretion. Prerequisite: Consent of the Department Chair. 1 to 3 credits.

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.

SPCH 2500
Advanced Public Speaking
Prerequisite: SPCH 2400
3-0-3

The study of principles and methods of selected forms of public speaking and oral presentation for various purposes and audiences. Speaking coverage ranges from speeches for special occasions, argumentation and debate, persuasive speaking, extemporaneous speaking and oral interpretation of literature.

SPCH 2510
Intercollegiate Forensics
1-0-1
Prerequisite: SPCH 2400 or concurrently

Training, practice, and participation in individual college forensics events. Repeatable up to a 4-credit maximum.

Technical and Professional Communication Courses

TCOM 2000
Business Communication
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. Prerequisites: ENGL 1102, SPCH 2400

TCOM 2010
Technical Writing
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. Prerequisite: ENGL 1102

TCOM 2020
Foundations of Technical Communication
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. Prerequisite: ENGL 1101

TCOM 2030
Research in Technical Communication
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. Prerequisite: TCOM 2010

TCOM 2040
Tools for Technical Communicators
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 are Microsoft Word, PowerPoint, Adobe Acrobat, Adobe/PhotoShop/Elements, and HTML. Pre-or-co-requisite: TCOM 2010

TCOM 2060
International Communication
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. Prerequisites: TCOM 2010; either TCOM 2020 or 2030 or concurrently

TCOM 3010
Science Writing
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. Prerequisite: ENGL 1102

TCOM 3015
Environmental Writing
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. Prerequisite: ENGL 1102

TCOM 3020
Proposal Writing
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 3030
Instructional Design
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 3040
Writer's Workshop
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. Prerequisites: ENGL 1102.

TCOM 3045
Fundamentals of Information Design
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. Prerequisite: TCOM 2010 and TCOM 2040.

TCOM 3050
Journalism
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently

TCOM 390x
Special Topics
Special topics in communications. Offered by the program at its discretion. Prerequisite: Consent of the department chair. 1 to 3 hours.

TCOM 4000
Professional Editing
3-0-3

Development of skills in proofreading, copyediting, and comprehensive editing. This course addresses issues of style, content, organization, and visual design. Prerequisites: TCOM 2010; either TCOM 2020 or 2030 or concurrently

TCOM 4030
Foundations of Graphics
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently

TCOM 4035
Fundamentals of Website Design
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 Dream Weaver and FrontPage. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 4040
Applied Graphics for Technical Communicators
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. Pre- or co-requisite: TCOM 2010, TCOM 2040, and TCOM 2040.

TCOM 4045
Foundations of Multimedia
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. Prerequisites: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 4050
Advanced Graphics Tools for Technical Communicators
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. Pre- or co-requisite: TCOM 2010, TCOM 2040, and TCOM 4030.

TCOM 4070
User Documentation
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 4100
Small Group Communication
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 4120
Usability Testing
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. Prerequisites: TCOM 2020, TCOM 2030, TCOM 4030.

TCOM 4130
Online Documentation
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 4160
Rhetoric: History, Theory, and Practice
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. Prerequisite: TCOM 2010; either TCOM 2020 or 2030 or concurrently.

TCOM 4170
Video Production
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. Prerequisites: TCOM 2010, TCOM 4030; either TCOM 2020 or 2030 or concurrently.
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

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. Prerequisite: Junior standing

TCOM 4800
Project Portfolio
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. Prerequisites: TCOM 4030; Senior standing; completion of 24 hours of TCOM courses.

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.

Fashion Design and Product Development

Offering:

The Bachelor of Apparels and Textiles Degree

Fashion Design and Product Development

(Bachelor of Apparel and Textiles Degree Offered)

Fashion is clothing that is in style at a particular time. The focus of the Fashion Design and Product Development program is the "concept to distribution" design and development of fashions for the ready-to-wear clothing market. Men's wear, women's wear, active and leisure apparel, children's wear and many other sewn products are all part of the fashion/apparel industry, one of the largest and most important industries in the United States. Excellent starting salaries, rapid advancement, job diversity, and travel are just some of the benefits to graduates of this program. The industry offers employment in all 50 states, and many opportunities around the world. Graduates work with technologies, computers and software to design and create quality products in a fast-paced, ever changing fashion environment.

The Faculty:

Thomas Ball	Lecturer
Walter Thomas	Professor

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

Requirements for the Bachelor of Apparel and Textiles In Fashion Design and Product Development

ARTS	2010	Introduction to Drawing	3
ECON	1101	Introduction to Economics	3
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
MGNT	2201	Introduction to Computers	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
TCOM	2010	Technical Writing	3
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two courses in Laboratory Science	8
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ATT	1000	Orientation	1
ATT	1300	International Sourcing	3
ATT	1400	Principles of Merchandising	3
ATT	2301	Apparel Computer-Aided Technical Design I	4
ATT	2500	Fabric Formation	3
ATT	2600	Apparel Analysis and Product Development	3
ATT	3100	Fashion Merchandising	3
ATT	3602	Apparel Computer-Aided Technical Design II	4
ATT	3800	Fashion Forecasting / Data Analysis	3
ATT	4440	Testing and Quality Control	4
ATT	4670	Apparel Business Practices	3
ATT	4750	Advanced Design and Product Development	3
ATT	4810	Ethics and Safety	1
ATT	4840	Apparel and Textile Business Project	3
Apparel and Textile Electives: Select four courses:			12
	IET 2227	Industrial Statistics	
	IET 3337	Purchasing and Supply Chain	
	IET 4449	Logistics Planning and Control	
	MGNT 3135	Marketing Principles	
	MGNT 3205	Management Information Systems	
	MGNT 4145	International Management	
ENGR 1210		Engineering Graphics/CAD	2
Free Electives			7
Degree Program Total			120

Fashion Design (Apparel and Textiles) Courses

ATT 1000
Orientation
1-0-1

Provides students and students majoring in other degree programs an overall introduction to the apparel and textile industry, career opportunities in the field, 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.

ATT 1300
International Sourcing
3-0-3

Survey of international sourcing strategies including the decision making process, transportation, domestic production, Asia/Europe/Americas operations, foreign investment, foreign purchase, turn time, competitive advantage, communications, full package production capabilities, cultural priorities, political influence, international regulations and alliances, costs, quality, and technology. The principles of marketing and distribution to a global market are also discussed.

ATT 1400
Principles of Merchandising
3-0-3

Merchandising functions are discussed that include developing strategies to have the right merchandise, at the right price, at the right time, in the right amount and at the right locations to meet target customer needs. This course will explore apparel and consumer product strategies and methods used in planning inventory. Issues in wholesaling, retailing, advertising, and promotion will be included.

ATT 2301
Apparel Computer-Aided Technical Design I
2-4-4

The use of industry standard computer systems to determine the product information for apparel and consumer textile products including source materials, processing and assembly options, pattern development, sizing theory, garment fit and product development. Students will develop a complete set of flat patterns and alternate designs utilizing manual and computer software methods through applied project work. Principles of material utilization, pattern engineering, quality, and final design will be emphasized. Prerequisites: ENGR 1210

ATT 2500
Fabric Formation
3-0-3

Theory and practice of warping and slashing, elements of fabric design, fabric analysis, the physics of loom motions including shuttle and shuttle less looms and the elements of fabric geometry and fabric cover are included. The principles of circular, flat, warp, and double-knits are covered. Fabric design and properties are included. Prerequisite: ATT 1100

ATT 2600
Apparel Analysis and Product Development
2-2-3

Steps involved in apparel product development from concept through delivery will be covered from the perceptive of the manufacturer and the retailer. Product creation, design, marketing, merchandising, sourcing and distribution are discussed along with a study of stitch formation and seam application. Prerequisites: ATT 1400.

ATT 3100
Fashion Merchandising
3-0-3

Application of merchandising principles as they relate to buying, problem-solving, retail math and visual presentation using standard industry practices and software. Students will learn how style, color and presentation are major ingredients to successful merchandising producing customer excitement and demand. Prerequisite: ATT 1400.

ATT 3602
Apparel Computer-Aided Technical Design II
2-4-4

Manual and computerized pattern grading theory are demonstrated and practiced by students utilizing industry standard digitizing, grading, and marker making systems. 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. Also presented are basic principles and computer methods of calculating, designing, and making pattern markers for apparel/textile products including yardage, cost estimation, and garment and fabric specifications through applied project work. 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. Prerequisites: ATT 2301, ATT 2500.

ATT 3800
Fashion Forecasting, Data Analysis & Consumer Trends
3-0-3

Explore the techniques used in industry today including computer software programs to assist with consumer-driven fashion forecasting. Students will examine how to identify, track, and analyze trends in apparel and consumer products consumption. Both long-range and short-range forecasting strategies will be used for market analysis. Consumer trend research activities involve collection of information from multiple sources on a continual basis for the consumer style selection, color selection, and the fabric and trim market.

ATT 4440
Testing and Quality Control
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. Prerequisites: ATT 2500.

ATT 4670
Apparel/Textile Business Practices
3-0-3

Evaluation of the comprehensive factors that determine sound business practices for planning, scheduling and production of apparel 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 software systems 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. Prerequisites: ATT 1300, ATT 2600, ATT 3602

ATT 4750
Advanced Design and Product Development
2-3-3

Students will examine the fashion industry design techniques through the use of technology in both 2D and 3D applications. The course surveys product development software and presentation methods used in industry today. Prerequisite: ATT 3602.

ATT 4810
Ethics and Safety
1-0-1

Students are provided information pertaining to ethics and safety regulations applicable to the textile industry. Prerequisite: Senior standing or consent of the department head.

ATT 4840
Textile/Apparel Business Project
1-4-3

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. Prerequisites: ATT 4670 or IET 4422, senior standing .

Modern Languages

Offering:

Bachelor of Science in International Studies--
Concentration in Spanish

Modern Languages

(Bachelor of Science Degree Offered in International Studies—Concentration in Spanish)

The Faculty:

Thomas Buresi	Adjunct
Elin Fowler	Adjunct
Bernice Nuhfer-Halten	Professor

The Modern Language program is part of the Department of Social and International Studies, in the School of Arts and Sciences at Southern Polytechnic State University. By offering an International Studies degree with concentrations in Spanish, SPSU is seeking to produce graduates who not only understand the historical, political and economic processes of globalization, but who also possess the technological skills and knowledge that will allow them to deal with the new demands of a more global society.

The International Studies—Spanish degree will prepare graduates for employment in:

International business
Pre-law
Intelligence
Government
Graduate study
Public policy
The non-profit sector

Students pursuing this degree must complete:

- The Core Curriculum 60
- Required Upper Division Core in international studies 24
- The Spanish concentration 15
- Directed International Electives 9
- Free Electives 12

Any courses taken to satisfy degree program requirements must be passed with a grade of "C" or better:

Requirements for the Bachelor of Science in International Studies—Spanish

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two Courses in Laboratory Science	8
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ECON	1101	Introduction to Economics	3
HIST	3801	Contemporary World History Since 1945	3
International Electives: Take any three of the following courses:			9
	ECON	2106 Macroeconomics	
	GEOG	3101 World Regional Geography	
	RELG	1200 World Religions	
	SIS	390x Special Topics in International Studies	
	SIS	4600 Internship	
	SPAN	300x Spanish (or other language at similar level)	
	STS	4400 Topical Studies in Science and Technology	
POLS	2401	Global Issues	3
POLS	2801	Comparative Politics	3
POLS	3101	International Political Economy	3
PSYC	3101	International Social Psychology	3
SIS	3600	Comparative Culture	3
SIS	400x	One Course in Regional Studies	3
SIS	4100	Cross National Technology Policy Analysis	3
SPAN	2001	Intermediate Spanish I	3
SPAN	2002	Intermediate Spanish II	3
Spanish Electives—Lower Level			6
	Any two 3000 level Spanish courses		
Spanish Electives—Upper Level			9
	Any three 4000 level Spanish courses		
STS	4000	International Issues in Science and Technology	3
STS	4800	Capstone Seminar	3
Free Electives			14
Degree Program Total			120

French Courses

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
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. Prerequisite: FREN 1002 or equivalent

FREN 2002
Intermediate French II
3-0-3

A continuation of FREN 2001. Not open to native speakers of French. Prerequisite: FREN 2001 or equivalent

Spanish Courses

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
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. Prerequisite: SPAN 1001 or one year of high school Spanish

SPAN 2001
Intermediate Spanish I
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. Prerequisite: SPAN 1002 or equivalent.

SPAN 2002
Intermediate Spanish II
3-0-3

A continuation of SPAN 2001. Not open to native speakers of Spanish. Prerequisite: SPAN 2001 or equivalent.

SPAN 3001
Applied Conversation
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. Prerequisite: SPAN 2002 or equivalent.

SPAN 3002
Grammar and Composition
3-0-3

Review of Spanish grammar. Practical writing practice in Spanish of personal and commercial correspondence, general and technical reports, and other forms. Prerequisite: SPAN 2002 or equivalent

SPAN 3003
Hispanic Cultures and Civilizations
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. Prerequisite: SPAN 2002 or equivalent, but SPAN 3001 and 3002 recommended.

SPAN 3901-3905
Special Topics

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. Prerequisite: SPAN 2002 or equivalent, but SPAN 3001 and 3002 recommended. 1-5 hours

SPAN4001
Professional Spanish
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. Prerequisites: Nine semester hours minimum of Spanish on the 3000 level.

SPAN4002
Techniques in Translation for Professional Spanish
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. Prerequisites: Nine semester hours minimum of Spanish on the 3000 level.

SPAN4901-4905
Special Topics for Professional Spanish

A repeatable course that may be used for study abroad on the advanced level. Prerequisites: Nine hours minimum of Spanish on the 3000 level, and prior agreement with faculty of Spanish.
1-5 hours.

General Studies

Offering:

The Associate of Science Transfer Degree

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

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	Pre-calculus (Or Math 1113)	3
MATH	1113	Pre-Calculus I	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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		Any Two Lab Sciences	8
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
Elective Courses as defined below			17
Program Total			60

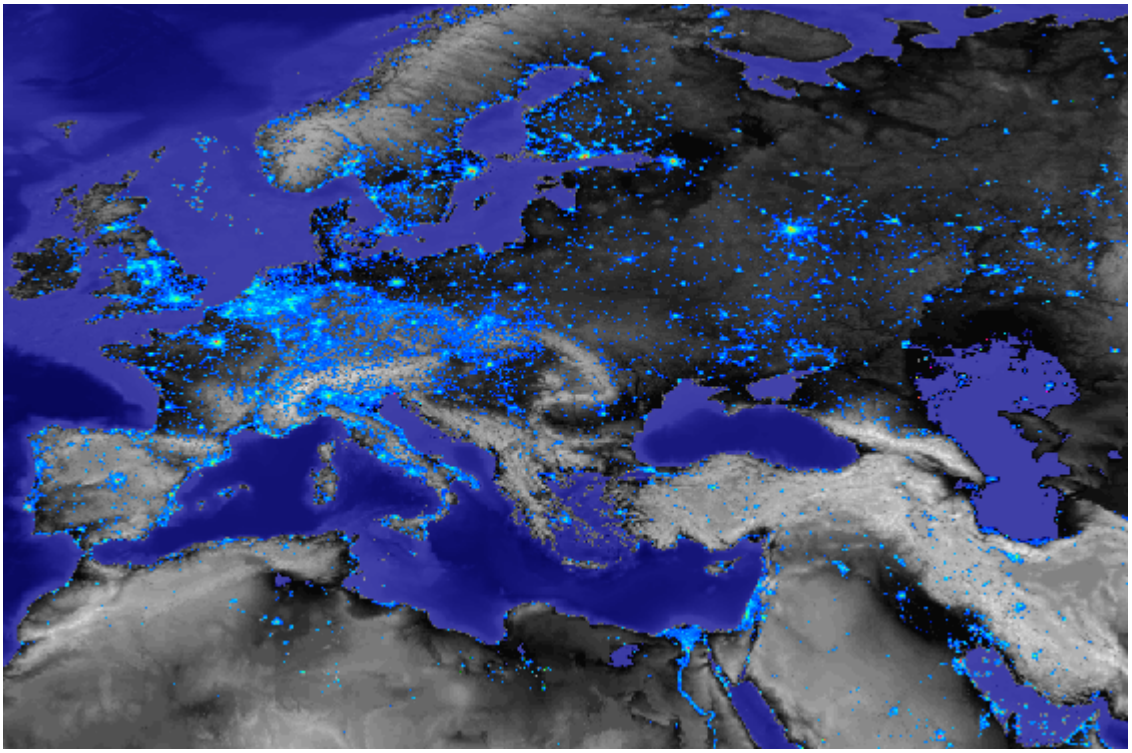
Elective Courses:

At least one course in humanities (Area C)	3
At least one course in social sciences (Area E)	3
Any humanities, social science, math, lab science or any area F course from any program.	11

History

Offering:

Bachelor of Science in International Studies
Concentration in History
The Bachelor of Science in International Studies
Concentration in History of Science and Technology



History

(Bachelor of Science Degree Offered in International Studies—Concentration in History)
(Bachelor of Science Degree Offered in International Studies—Concentration in History of Science and Technology)

The Faculty:

Al Churella	Associate Professor
Maryanne. Holdzkom	Lecturer
Julie Newell	Professor
Roger Soiset	Instructor
Mark Vickrey	Lecturer

The Program:

The History program is part of the Department of Social and International Studies, in the School of Arts and Sciences at Southern Polytechnic State University. By offering an International Studies degree with concentrations in History, SPSU is seeking to produce graduates who not only understand the historical, political and economic processes of globalization, but who also possess the technological skills and knowledge that will allow them to deal with the new demands of a more global society.

The International Studies--History degree will prepare graduates for employment in:

International business
Intelligence
Graduate study
The non-profit sector
Pre-Law
Government
Public Policy

Students pursuing this degree must complete:

- The Core Curriculum 60
- Required Upper Division Core in international studies 24
- The History concentration 15-21
- Directed International Electives 9
- Free Electives 6-12

Any courses taken to satisfy degree program requirements must be passed with a grade of "C" or better:

Requirements for the Bachelor of Science in International Studies—Concentration in History

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two Courses in Laboratory Science	8
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ECON	1101	Introduction to Economics	3
HIST	1111	Survey of World Civilization pre- 1500	3
HIST	1112	Survey of World Civilization post- 1500	3
HIST	2111	United States History I	3
HIST	2112	United States History II	3
HIST	3801	Contemporary World History since 1945	3
History Electives: Take any three of the following courses:			9
	HIST	3301 Diplomatic and Military History since 1815	
	HIST	3401 Social and Cultural History During the 20th Century	
	HIST	3501 Colonization and Rebellion in the Trans-Atlantic World	
	HIST	3601 History of the Pacific Rim	
	HIST	390x Special Topics in History	
International Electives: Take any three of the following courses:			9
	ECON	2106 Macroeconomics	
	GEOG	3101 World Regional Geography	
	POLS	3601 Contemporary World Politics	
	POLS	4101 Political Economy of Post-Communist Transformation	
	RELG	1200 World Religions	
	SIS	390x Special Topics in International Studies	
	SIS	4600 Internship	
	SPAN	300x Spanish (or other language at similar level)	
	STS	4400 Topical Studies in Science and Technology	
POLS	2401	Global Issues	3
POLS	2801	Comparative Politics	3
POLS	3101	International Political Economy	3
PSYC	3101	International Social Psychology	3
SIS	3600	Comparative Culture	3
SIS	400x	One Course in Regional Studies	3
SIS	4100	Cross National Technology Policy Analysis	3
SPAN	2001	Intermediate Spanish I*	3
SPAN	2002	Intermediate Spanish II*	3
STS	4000	International Issues in Science and Technology	3
STS	4800	Capstone Seminar	3
Free Electives			16
Degree Program Total			120

*Or other language at a similar level

Requirements for the Bachelor of Science in International Studies—Concentration in History of Science and Technology

ENGL	1101	Composition I		3
ENGL	1102	Composition II		3
MATH	1111	College Algebra		3
MATH	1113	Pre-Calculus		4
SPCH	2400	Public Speaking		2
STS	2400	Science, Technology and Society		2
Area	C1	Course in Literature		3
Area	C2	Course in Art and Culture		3
Area	D	Two Courses in Laboratory Science		8
Area	E3	Course in Behavioral Science		3
Area	E4	Course in Cultures and Societies		3
ECON	1101	Introduction to Economics		3
HIST	1111	Survey of World Civilization pre 1500		3
HIST	1112	Survey of World Civilization post 1500		3
HIST	2111	United States History I		3
HIST	2112	United States History II		3
HIST	3801	Contemporary World History post 1945		3
History Electives: Take any three of the following courses:				9
	HIST	3200	History of Science Survey	
	HIST	3250	History of American Technology	
	HIST	3260	History of American Science and Medicine	
	HIST	490x	Special Topics in the History of Science and Technology	
International Electives: Take any three of the following courses:				9
	ECON	2106	Macroeconomics	
	GEOG	3101	World Regional Geography	
	POLS	3601	Contemporary World Politics	
	POLS	4101	Political Economy of Post-Communist Transformation	
	RELG	1200	World Religions	
	SIS	390x	Special Topics in International Studies	
	SIS	4600	Internship	
	SPAN	300x	Spanish (or other language at similar level)	
	STS	4400	Topical Studies in Science and Technology	
POLS	2401	Global Issues		3
POLS	2801	Comparative Politics		3
POLS	3101	International Political Economy		3
PSYC	3101	International Social Psychology		3
SIS	3600	Comparative Culture		3
SIS	400x	One Course in Regional Studies		3
SIS	4100	Cross National Technology Policy Analysis		3
SPAN	2001	Intermediate Spanish I*		3
SPAN	2002	Intermediate Spanish II*		3
		* or other language at a similar level		
	STS	4000	International Issues in Science and Technology	3
	STS	4800	Capstone Seminar	3

Free Electives	16
Degree Program Total	120

History Courses

HIST 1111
Survey of World Civilization pre 1500
3-0-3

A survey of the cultural, political, economic, intellectual, social, and scientific development of early world civilizations from prehistoric times to the Age of Exploration, ca. 1500.

HIST 1112
Survey of World Civilization post 1500
3-0-3

A survey of the cultural, political, economic, intellectual, social, and scientific development of civilizations from the Age of Exploration 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
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. Prerequisite: Junior standing or consent of the department chair.

HIST 3250
History of American Technology
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. Prerequisite: Junior standing or consent of the department chair.

HIST 3260
History of American Science and Medicine
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, he relationship between science and government, the relationship between science and medicine, and the development of medical knowledge and practice. Prerequisite: Junior standing or consent of the department chair.

HIST 3301
Diplomatic and Military History since 1815
3-0-3

Students will discuss the period of unprecedented stability in Europe that followed Napoleon's defeat at Waterloo, demonstrate an understanding of the Age of Imperialism, with its transformative effects on African and Asian societies. The course will also cover the contemporaneous wars of independence in Latin America, and the growing interdependence between that region and the United States. In the twentieth century, the course will discuss the two World Wars, the Cold War, and the growing importance of foreign policy relationships in the Middle East. Prerequisite: HIST 1112.

HIST 3401
Social and Cultural History during the Twentieth Century
3-0-3

Students will demonstrate an understanding of the ideas and ideals that have helped to transform the world during the Twentieth Century. Often called "the people's century," the last hundred years have witnessed profound changes in thought, ranging from Freud to post-modernism, a transition in art from Impressionism to Andy Warhol, and the evolution of musical traditions from Ragtime to Rap. At the same time, women and people of color have attained new rights and embraced new roles in societies around the world. And, while the United States has successfully exported mass culture to the rest of the planet, people in many nations have reacted negatively – and sometimes violently – to what they perceive as American social and cultural hegemony. Prerequisite: HIST 1112

HIST 3501
Colonization and Rebellion in the Trans-Atlantic World
3-0-3

Students will exhibit an understanding of the indigenous inhabitants of the Americas, and discuss the period of interaction with Europeans (British, Spanish, Portuguese, French, Dutch, and Russians) that accompanied the Age of Exploration. Beginning with the American and Haitian revolutions, the course will describe the creation of new governments in the United States, Latin America, and the Caribbean. Trans-Atlantic commerce and the slave trade will also be covered in this class. Prerequisite: HIST 2111.

HIST 3601
History of the Pacific Rim
3-0-3

An exploration of the conjoined and interdependent nature of the economic, political, religious, social, and cultural traditions of the nations and the regions bordering the Pacific Ocean. Prerequisite: HIST 1112.

HIST 390x
Special Topics

Special topics in American or world history. Offered by the department on a demand basis. Prerequisite: Consent of the department chair. 1 to 3 hours.

HIST 490x
Special Topics in the History of Science and Technology

Special Topics in the History of Science and Technology. Offered by the department on a demand basis. Prerequisite: Consent of the department chair. 1 to 3 hours.

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.

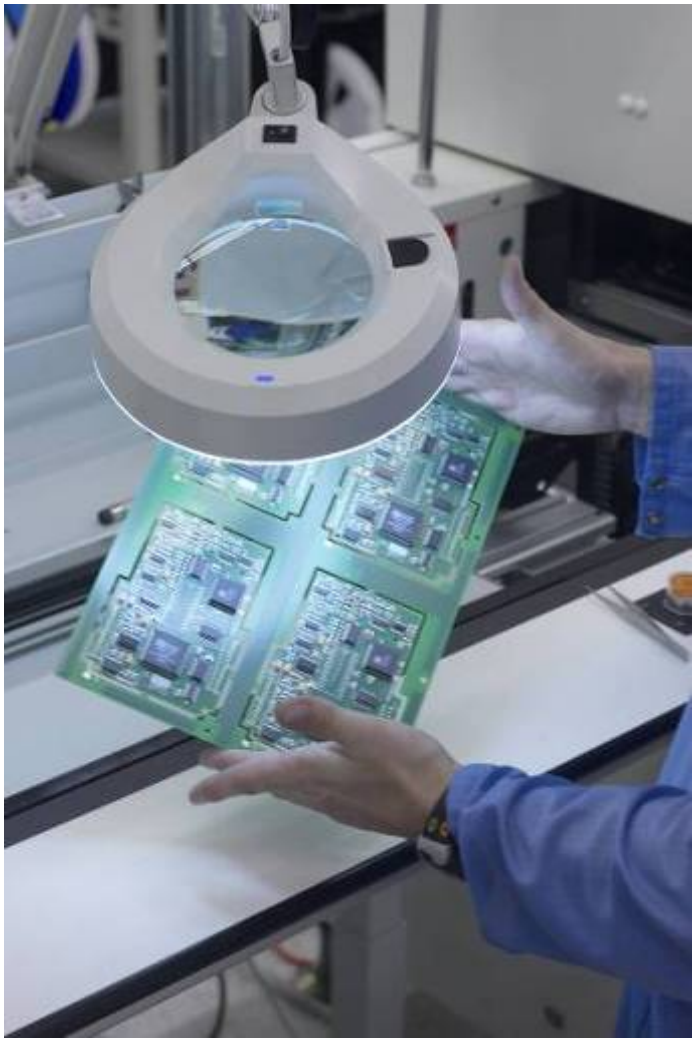
STS 4800
Global Technology Seminar
Prerequisite: Completion of international studies upper division core and senior status OR permission of the instructor
3-0-3

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.

Industrial Engineering Technology

Offering:

Bachelor of Science in Industrial Engineering Technology



Industrial Engineering Technology

(Bachelor of Science Degree Offered)

Who manages the flow of people at theme parks or airports? Decides what kind of training employees need before they work with new equipment? Explains to accountants why the cost of a facility upgrade has changed? Determines where to add people or machinery for maximum impact? If you like to be at the center of the action, designing creative solutions that make business and industry work safer, faster, and leaner, the career for you is industrial engineering technology.

Offering the only Industrial Engineering Technology program in the University System of Georgia, Southern Polytechnic prepares you to help make organizations more efficient, productive, and cost-effective. This kind of skill adds directly to your company's—and your own—bottom line.

Who makes a good industrial engineering technologist? Students who are organized, analytical, and detail oriented, yet who can think of creative solutions to resolve problems. Since you work with people from many different areas, you need to enjoy interacting with diverse specialists. Excellent communication skills are crucial, too, as you translate engineering requirements to non-engineers and explain technical information to managers.

Industrial engineering technologists manage quality, resources, and systems of a wide range of workplaces, including commercial facilities, service organizations, hospitals, and insurance companies.

To compete today, business and industry must aim for the greatest productivity and quality. SPSU does the same. Our small classes ensure more individual attention from our expert faculty. We take a more applied approach than other programs, and we've made our curriculum easy to schedule around labs. Moreover, IET's Industry Advisory Board provides suggestions to keep our curriculum current.

As you master quality control, facility design, time studies, simulation software, and project management, you can immediately apply such course knowledge in a part-time job or internship. Employers appreciate our students' professionalism, learned by making class presentations and working in teams. This experience also prepares you to manage future projects—a new service, a new process, a new product or whatever new innovation your employer is considering.

On the job, internships provide a guarantee of industry experience before graduation. IET students select three placements from the list of available openings, and we try to assign each person's top choice. As an intern you work on a specific project, such as:

- conducting quality review
- changing a plant layout
- projecting capacity ten years in the future
- helping targeted areas run more efficiently

Students present their finding at the companies and on campus, and these results can lead to job offers. Our internship locations include Auto VentShade Corporation, Ciba-Geigy Corporation, Lockheed Martin Corporation, Revest, Scientific Atlanta, Siemens, UPS, and the Wrigley Company.

SPSU's IET graduates work for such local powerhouses as Delta Airlines and Shaw Industries, and nationally for Johnson & Johnson and other name brands. Salaries are excellent.

Traditionally industrial engineering technologists have pursued careers in manufacturing environments, but increasingly they hold positions in banking, healthcare, logistics, and transportation. Our student organizations—branches of the Institute of Industrial Engineers (IIE) and American Society for Quality (ASQ)—put you in contact with professional networks before graduation.

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
- Logistics and Supply Chain Management
- Systems Simulation
- Salary and Compensation Plans
- Workplace Design
- Personnel Management
- Occupational Safety, Health and Ethics
- Project Management
- Economic Analysis/Cost Control

Offering the only Industrial Engineering Technology program in the University System of Georgia, Southern Polytechnic prepares you to help make organizations more efficient, productive, and cost-effective. To enable the graduate to solve such a wide variety of business and industrial problems, the curriculum of study is broad and interesting.

The Faculty:

Robert W. Atkins	Professor
Thomas R. Ball	Instructor
Renee J. Butler	Assistant Professor
David C. Caudill	Professor
E. Lester Dollar, III	Associate Professor
David C. Frye	Lecturer
Carol R. Ellis	Instructor
Ruston M. Hunt	Associate Professor and Department Chair
Kenneth W. Jackson	Assistant Professor
Mary McShane Vaughn	Assistant Professor
Christine R. Scherrer	Assistant Professor
Senay Solak	Instructor
Walter Thomas, Jr.	Professor

Requirements for the Industrial Engineering Technology - Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
ENGL	2010	Technical Writing	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2253	Calculus I (extra hour is applied to area F)	4
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	See your advisor before you select science courses* **Note 1**		8
CHEM	1211K	Principles of Chemistry I	4
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
ACCT	2101	Accounting I	3
MGNT	4115	Human Resource Management	3
MGNT	4151	Production & Operations Management	3
ATET	4810	Safety & Ethics	1
IT	1113	Programming Principles	3
ENGR	1210	Survey of Engineering Graphics	2
IET	2305	Principles of Industrial Systems	4
IET	1000	Orientation	1
IET	2227	Introduction to Statistics	3
IET	3424	Engineering Economy	3
IET	3401	Project Organization and Control	3
IET	3403	Industrial Experimentation	3
IET	3433	Engineering Product and Process Cost Estimating II	3
IET	3322	Work Measurement and Ergonomics	4
IET	3339	Statistical Quality Control	3
IET	4422	Plant Layout and Materials Handling	4
IET	4405	Principles of Operations Research	3
IET	4449	Logistics Planning & Control	3
IET	4451	Systems Simulation	3
IET	4475	Senior Project	3
IET	3356	Quality Concepts & Systems	3
Free Elective		See Note 3	9
IET Electives		See Note 3	9

Degree Program Total **130**

A concentration may be specified by replacing three hours of free electives and nine hours of IET electives with one of the following blocks:

Engineering Management Concentration

IET	3410	Principals of Team Dynamics	3
IET	4435	Fundamentals of Engineering Sales	3
MGNT	3105	Management and Organizational Behavior	3
MGNT	4185	Technology Management	3
Concentration Total			**12 hrs**

Quality Assurance Concentration

IET	3407	Six Sigma Concepts	3
IET	4111	Design of Experiments	3
IET	4121	Advanced Topic in QA	3
SWE	3643	Marketing Management	3
Concentration Total			**12 hrs**

Services Concentration

IET	3501	Service Systems Engineering	3
IET	435	Fundamentals of Engineering Sales	3
IET	4447	Purchasing and Supply Chain Systems	3
MGNT	3205	Management Information Systems	3
Concentration Total			**12 hrs**

Notes:

Note 1 - Physics I and Chemistry I are preferred Area D Sciences, however, any Lab Science from the approved list is permissible.

Note 2 – Physics II is the preferred Area F Science, however, any level Lab Science from the approved list is permissible with department approval.

Note 3 - The Professional registration path requires MET 3101, ECET 3000, CET 2200 to be taken in place of free electives and three hours of IET electives.

Note 4 – The 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.

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	3356	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

Management Elective Option

Complete 12 hours of Management electives plus 5 hours of free electives.

MGNT	3210	Professional Selling	3
MGNT	3224	Business Marketing	3
MGNT	3228	Market Research & Demand	3
MGNT	3500	Database Applications	3
MGNT	4075	Healthcare Management	3
MGNT	4100	Business Systems Analysis and Design	3
MGNT	4103	Marketing 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

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)
MGNT 3500	Database Applications
MGNT 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

MGNT 3210	Professional Selling
MGNT 3224	Business Marketing
MGNT 3228	Market Research & Demand
MGNT 4103	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 Management Human Resource Management 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).

Industrial Engineering Technology Department
Certificate in Logistics

The primary objective of the *Certificate in Logistics* is to provide training and education to members of the Supply Chain industry that need to improve skills and knowledge in the latest technology available in their field. Students can complete the requirements in 4-6 semesters. The courses may also be applied toward completing a B. S. degree in Industrial Engineering Technology. The program will be offered on campus, through distance learning, and over the Internet.

Admission Requirements:
Applicants must have earned a High School degree or GED and been out of high school for at least five years or have earned 30 college credits from an accredited institution of higher learning with a minimum GPA of 2.0.

Required Courses:

IET 2227 Introduction to Statistics	3
IET 4354 Principles of Transportation	3
IET 4447 Purchasing and Supply Chain Systems	3
IET 4449 Logistics Planning and Control	3
IET 4460 Warehouse Operations	3
MGNT 4115 Human Resources Management	3
MGNT 4151 Production and Operations Management I	3
	Total 21 credits

Industrial Engineering Technology Department

Certificate in Production Design

The primary objective of the Certificate in Production Design is to provide training and education to members of the Industrial Engineering field in the measurement and analysis of work and in the design or improvement of facilities. Students can complete the requirements in 3-4 semesters. These courses may also be applied toward completing a B.S. degree in Industrial Engineering Technology upon acceptance to SPSU.

Admission Requirements:
Applicants must meet all undergraduate admission requirements.

Required Courses:

ACCT 2101	Engineering Product and Process Cost Estimating I	3
IET 3322	Work Measurement and Ergonomics	4
IET 3433	Engineering Product and Process Cost Estimating II	3
IET 4422	Plant Layout and Materials Handling	4
IET 4451	Systems Simulation	3
MGNT 4151	Production and Operations Management I	3
	TOTAL	21

Industrial Engineering Technology Department
Certificate in Quality Principles

The primary objective of the Certificate in Quality Principles is to provide training and education to members of the Industrial Engineering field in quality system principles, methodology, elements and standards. Students can complete the requirements in 3– 4 semesters. These courses may also be applied toward completing a B.S. degree in Industrial Engineering technology upon acceptance to SPSU.

Admission Requirements:
Applicants must meet all undergraduate admission requirements.

Required Courses:

IET 2227	Introduction to Statistics	3
IET 3339	Statistical Quality Control	3
IET 3403	Industrial Experimentation	3
IET 3410	Principles of Team Dynamics	3
IET 3356	Quality Concepts and Systems Design	3
MGNT 4135	Project Management	3
MGNT 4151	Production and Operations Management I	3
	TOTAL	20

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, ENGR 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 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 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 3407
Six Sigma Concepts
Prerequisite: IET 3356
3-0-3

A study of current trends in quality as it relaxes to Six Sigma, Black Belt and lean on manufacturing

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 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 4111
Design of Experiments
Prerequisites: IET 3403
3-0-3

A study for Design of Experiments, its application and programs that
support it. Software will be used for solutions.

IET 4121
Advanced Topics in Quality Assurance
3-0-3

Current trends in Quality will be examined.

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 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
1-4-3

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 1112
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.

Quality Assurance

QA 6600 Methods of Analysis
QA 6602 Total Quality
QA 6610 Statistics for Quality Assurance
QA 6611 Advanced Statistical Applications
QA 6612 Advanced Experimental Design
QA 6615 Applied Systems Reliability
QA 6620 Inspection Systems Design
QA 6630 Technical Training Methods
QA 6640 Quality Cost and Supplier Evaluation
QA 6650 Quality Systems Design
QA 6660 Six Sigma Black Belt Concepts
QA 6712 Quality Systems Simulation
QA 6722 Human Factors in Quality Assurance
QA 6763 Software Quality
QA 6901-6903 Special Topics in Quality
QA 7403 Graduate Seminar
QA 7503 Research in Quality
QA 7603 Applications in Quality

Systems Engineering

SYE 6005 Introduction to Systems Engineering
SYE 6010 Managing the Technical Effort Associated with System Creation
SYE 6015 Systems Analysis and System Design
SYE 6020 System Architecture
SYE 6025 Engineering Economic Analysis
SYE 6030 Verification Program Development & Management
SYE 6035 Modeling and Simulation
SYE 6040 Advanced Configuration Management
SYE 6045 Process Assessment and Improvement
SYE 6050 Reliability and Sustainability
SYE 6055 System Development Workshop
SYE 6060 Systems Engineering Workshop

Information Technology

Offering:

Bachelor 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 Faculty:

Robert L. Brown	Lecturer
Richard Halstead-Nussloch	Professor
Fred D. Hartfield, Jr.	Associate Professor
Svetlana Peltsverger	Assistant Professor
Rebecca Rutherfoord	Professor
Susan Vande-Ven	Instructor
Ju An Wang	Professor and Department Chair

The Program:

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**

Requirements for the Information Technology Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2253	Calculus I (extra hour is applied to area F)	4
	OR		
MATH	2240	Survey of Calculus	4
MATH	2345	Discrete Mathematics	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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	See your advisor before you select science courses		8
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
ACCT	2101	Accounting I	3
MATH	2260	Probability & Statistics	
	OR		
IET	2227	Statistics	4
CS	1301	Computer Science I	4
IT	1324	Advanced Programming with Applications	4
	OR		
CS	1302	Computer Science II	4
CS	1002	Introduction to the Computing Disciplines	2
CS	3153	Database Systems	3
SWE	2642	Professional Practices & Ethics	2
SWE	4324	User Centered Design	4
MGNT	3105	Management and Organizational Behavior	3
IT	3124	Hardware/Software Concepts	4
IT	3204	Introduction to Web Development	4
IT	3224	Software Development Life Cycle	4
IT	3423	Operating Systems Concepts and Administration	3
IT	4123	Electronic Commerce	3
IT	3883	Applications Development using Java	3
IT	4323	Data Communications and Networks	3
IT	4823	Information Security Administration	3
Free Electives			6
Concentration or Technical Electives (see listing below)			12
Degree Program Total			**120**

Choose one of the tracks below and complete 3 of their courses. The 4th elective can be from the same or different track.

Management Concentration

MGNT	4185	Technical Management	3
MGNT	4151	Production and Operations Management	3
SWE	4663	Software Project Management	
OR			
MGNT	4135	Project Management	3
IT	4723	IT Policy and Law	
OR			
MGNT	3145	Legal Environment	3

Systems & Administration Concentration

IT	4203	Adv Web Development	3
IT	4153	Advanced Database	3
IT	4333	Network Conf & Administration	3
IT	3653	Client Server System Administration	3

Advanced Software Development Concentration

IT	4683	Management Information Systems	3
IT	4723	IT Policy and Law	3
SWE	4663	Software Project Management	3
SWE	4724	Software Engineering Project Management	3

Information Assurance & Security Concentration

IT	4833	Wireless Security	3
IT	4843	Ethical Hacking	3
IT	4853	Computer Forensics	3
IT	4903	Special Topics in Information Security	3

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 in Information Technology

CS	1301	Computer Science I	4
IT	1324	Advanced Programming Principles	4
IT	3124	Hardware/Software Concepts	4
IT	3204	Introduction to Web Development	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

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: IT 1324, IT 3124 and CS 3153
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

The student develops knowledge of the principles of information assurance at the policy, procedural, and technical levels to prepare the student for a role as a business decision-maker. Real-world examples from the text and current events will be used to demonstrate the applicability of the techniques of information assurance.

IT 4833
Wireless Security
Prerequisite: IT 4823
3-0-3

This course covers methods and techniques to secure wireless networks against threats and attacks. Topics include: Encrypt wireless traffic for privacy and authenticity, implement WPA and the 802.lli security standards to protect Wi-Fi networks, wireless network intrusion detection and prevention, and security trouble-shooting WLANs.

IT 4843
Ethical Hacking
Prerequisites: IT 1124, CS 3153, IT 3124
3-0-3

This course covers the major issues surrounding the use of penetration testing to secure network security. Topics include the ethics of ethical hacking, legal considerations, vulnerability discovery and risk analysis, internal and external attacks, penetration testing methods and tools, latest security countermeasures, and various types of penetration testing and programming skills required to complete successful penetration tests..

IT 4853
Computer Forensics
Prerequisite: IT 4823
3-0-3

This course studies techniques and tools in computing investigation, digital evidence collection, recovery, and analysis. Topics include: Legal issues relating to digital evidence, recover deleted files and discover hidden information, reconstruct user activity from e-mail, temporary Internet files and cached data, assess the integrity of system memory and process architecture to reveal malicious code.

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
IT 5123 Web Development
IT 5133 Data Communications & Networks
IT 6403 Windows Application Development
IT 6473 Multimedia Applications
IT 6553 Business Continuity Risk Assessment
IT 6563 Business Continuity Planning
IT 6573 Business continuity Implementation
IT 6643 Issues in Information Management
IT 6663 Data Center Management
IT 6683 Management of Information Technology
IT 6723 Managing Operating and Network Systems
IT 6733 Database Administration
IT 6753 Advanced Web Concepts & Applications
IT 6763 Electronic Commerce
IT 6823 Information Security Concepts and Administration
IT 6843 Ethical Hacking: Network Security and Penetration Testing
IT 6863 Database Security and Auditing
IT 6833 Wireless Security
IT 6853 Computer Forensics
IT 6873 Information Security Seminar
IT 6903 Special Topics in Information Technology
IT 7803 Master's Thesis
IT 7833 IT Strategy and Policy

International Studies

Offering:

Bachelor of Science in International Studies

International Studies

(Bachelor of Science Degree Offered)

By offering an International Studies degree with concentrations in an area of technology or applied liberal arts, 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	Pre-law
Intelligence	The transportation industry
Graduate study	Government
The travel industry	Public policy
The military	Work in the non-profit sector

Students pursuing this degree must complete:

- The Core Curriculum 60
- Required Upper Division Core in international studies 24
- A particular area of concentration 15-21
- Directed International Electives 9
- Free Electives 6-12

Any courses taken to satisfy degree program requirements in the following sections must be passed with a grade of "C" or better: International Studies Required Upper Division Core, the student's Concentration, and the student's Directed International Electives.

The Faculty:

Richard A. Bennett	Associate Professor and Director of International Programs
Al Churella	Associate Professor
J. LaJuana Cochrane	Associate Professor
Maryanne. Holdzkom	Lecturer
Julie Newell	Professor and Department Chair
Thomas Nisley	Assistant Professor
Bernice Nuhfer-Halten	Professor
Thomas E. Rotnem	Associate Professor
Roger Soiset	Instructor
Mark Vickrey	Lecturer

Requirements for the Requirements of the Bachelor of Science in International Studies

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two Courses in Laboratory Science	8
Area	E1	Course in American Context	3
Area	E2	Course in World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ECON	1101	Introduction to Economics	3
HIST	3801	Contemporary World History post 1945	3
POLS	2401	Global Issues	3
POLS	2801	Comparative Politics	3
POLS	3101	International Political Economy	3
PSYC	3101	International Social Psychology	3
SIS	3600	Comparative Culture	3
SIS	400x	One Course in Regional Studies	3
SIS	4100	Cross National Technology Policy Analysis	3
SPAN	2001	Intermediate Spanish I*	3
SPAN	2002	Intermediate Spanish II*	3
	Or another language at a similar level		
STS	4000	International Issues in Science and Technology	3
STS	4800	Capstone Seminar	3
International Electives: Take any three of the following courses:			9
	ECON	2106 Macroeconomics	
	GEOG	3101 World Regional Geography	
	POLS	3601 Contemporary World Politics	
	POLS	4101 Political Economy of Post-Communist Transformation	
	RELG	1200 World Religions	
	SIS	390x Special Topics in International Studies	
	SIS	4600 Internship	
	SPAN	300x Spanish (or other language at similar level)	
	STS	4400 Topical Studies in Science and Technology	

Concentration 15-22

International Studies majors are required to complete one of the concentrations listed below.

Free Electives	variable
Degree Program Total	120

Concentration Options

Students majoring in International Studies must complete one of the following areas of Concentration:

Biology	15-16
Business	15
Civil Engineering Technology	16
Computing	20
Construction	16
Electrical Engineering Technology	16
General Technology	17-21
History	15
History of Science and Technology	15
Industrial Engineering Technology	16
Political Science	15
Social Science	15
Spanish	15
Surveying	17
Technical Communication	15
Technology and the Law	15

Biology Concentration (15-16 credits)

This area of concentration will provide students with a basic understanding of the principles and terminology in the Biology discipline. Students taking this option should take BIO 2107K and BIO 2108K to satisfy the core lab science core requirements.

- BIOL 3000K Genetics (4)
- BIOL 3310K Molecular Biology (4)
- BIOL 3200K Biotechnology (4)
- Any additional Biology course numbered 3000 or higher (3-4)

Business Concentration (15 credits)

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

- 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)

Civil Engineering Technology Concentration (16 credits)

This concentration will give students a basic understanding of the principles and terminology involved in civil engineering technology. Students taking this option should take PHYS 1111 and PHYS 1112 to satisfy the core lab science core requirements.

- CET 1001 Orientation (1)
- CET 2160 Civil Engineering Graphics (4)
- CET 2200 Introduction to Structures (4)
- CET 3343 Basic Fluid Mechanics (4)
- CET 3344 Fundamentals of Environmental Engineering Technology (3)

Computing Concentration (20 credits)

This concentration will give students a basic understanding of the principles and terminology involved in computer science and programming.

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

Construction Concentration (16 credits)

This concentration will give students a basic understanding of what makes the construction process work.

- CNST 1000 Orientation (2)
- CNST 2000 Construction Graphics (4)
- CNST 3000 Computer Applications (2)
- CNST 3110 Building Techniques I (4)
- CNST 3410 Estimating I (4)

Electrical Engineering Technology Concentration (16 credits)

This concentration will give students a basic understanding of the principles and terminology involved in electrical engineering technology. Students taking this option should take PHYS 1111 and PHYS 1112 to satisfy the core lab science core requirements.

- ECET 1000 Orientation (2)
- ECET 1011 Fundamentals (3)
- ECET 2800 Introduction to Telecommunications (4)
- ECET 3000 Electrical Principles (4)
- ECET 3810 C++, JAVA, HTML (3)

General Technology Concentration (17-21 credits)

This option gives students a broad understanding of technology. Students taking this option should take PHYS 1111 and PHYS 1112 to satisfy the lab science core requirements.

- **Orientation Course: Take any one of the following:** **(1-2)**
  - ATET 1000 Apparel and Textile Orientation
  - CET 1001 Orientation to Civil Engineering Technology
  - CNST 1000 Orientation to Construction and Development
  - ECET 1000 Orientation to Electrical Engineering Technology
  - IET 1000 Orientation to Industrial Engineering Technology
  - MET 1000 Mechanical Engineering Technology Orientation
- **Computer Literacy: Take one of the following:** (3-4)
  - CS 1301 Computer Science
  - CS 2123 Programming
- **Graphics. Take one of the following:** (2-4)
  - ENGR 1210 Survey of Engineering Graphics
  - EG 1211 Survey of Engineering Graphics I
  - CNST 2000 Construction Graphics
- **Electricity** (4)
  - ECET 3000 Electrical Principles
- **Measurement. Take one of the following:** (4)
  - CET 2200 Introduction to Structures
  - SURV 2200 Construction Measurement
  - SURV 2221 Surveying
- **Manufacturing. Take one of the following:** (3)
  - MET 1311 Manufacturing Process
  - IET 2305 Production Process

History Concentration (15 credits)

This concentration encompasses the development of the human experience as it changes over time and across cultures and offers analytical and communications skills applicable in a wide range of professional settings.

- **World History: Select whichever course not taken to satisfy core requirements** (3)
  - HIST 1111 Survey of World Civilization to 1500
  - HIST 1112 Survey of World Civilization since 1500
- **American History: Select whichever course not taken to satisfy core requirements** (3)
  - HIST 2111 United States History I
  - HIST 2112 United States History II
- **History Electives: Select any three of the following:** (9)
  - HIST 390x Special Topics in History
  - HIST 3301 Diplomatic and Military History Since 1815
  - HIST 3401 Social and Cultural History During the 20th Century
  - HIST 3501 Colonization and Rebellion in the Trans-Atlantic World
  - HIST 3601 History of the Pacific Rim
  - SIS 400x Regional Studies

History of Science and Technology Concentration (15 credits)

This concentration will use historical investigation to give students a deeper understanding of the nature and impact of science and technology.

- **World History: Select whichever course not taken to satisfy core requirements** (3)
  HIST 1111 Survey of World Civilization to 1500
  HIST 1112 Survey of World Civilization since 1500
- **American History: Select whichever course not taken to satisfy core requirements** (3)
  HIST 2111 United States History I
  HIST 2112 United States History II
- **History Electives: Select any three of the following:** (9)
  HIST 3200 History of Science Survey
  HIST 3250 History of American Technology
  HIST 3260 History of American Science and Medicine
  HIST 490x Special Topics in the History of Science and Technology

Industrial Engineering Technology Concentration (16 credits)

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

- IET 1000 Orientation (1)
- IET 2227 Industrial Statistics (4)
- IET 2305 Production Process (4)
- IET 2432 Cost Estimating (3)
- IET 3322 Work Measures (4)

Political Science Concentration (15 credits)

This concentration provides students with a basic introduction into the terminology, theoretical frameworks and developments within the various sub-fields of political science.

- **Orientation: Select whichever course not taken to satisfy core requirements** (3)
  HIST 2112 U.S. History II
  POLS 1101 American Government
- **Political Science Requirements: Take all of the following:** (9)
  POLS 3201 Constitutional and International Law
  POLS 3301 Modern Political Theory
  POLS 3601 Contemporary World Politics
- **Political Science Electives: Select one of the following:** (3)
  POLS 4101 Political Economy of Post-Communist Transformation
  SIS 400x Regional Studies

Social Science Concentration (15 credits)

With this concentration, students will be introduced to the basic terminology, theoretical frameworks and developments within various social science disciplines.

- **Orientation: Select two of the following:** (6)
  ANTH 1102 Introduction to Anthropology
  GEOG 1101 Introduction to Human Geography
  POLS 3601 Contemporary World Politics
  RELG 1200 World Religions
- **Social Science Electives: Select three of the following:** (9)
  HIST Any History course not used to satisfy other requirements
  PSYC Any Psychology course not used to satisfy other requirements
  POLS Any Political Science course not used to satisfy other requirements
  SIS Any Social and International Studies course not used to satisfy other requirements
  SPAN 3003 Hispanic Cultures and Civilizations

  Note: Only one course may be selected from each discipline.

Spanish Concentration (15 credits)

With this concentration students can achieve an intermediate low proficiency in Spanish and a basic understanding of Hispanic cultures.

- **Any two 3000 level Spanish courses** (6)
- **Any three 4000 level Spanish courses** (9)

Surveying Concentration (17 credits)

This concentration will give students a basic understanding of the principles and terminology involved in surveying. Students taking this option should take PHYS 1111 and PHYS 1112 to satisfy the lab science core requirements.

- CET 1001 Orientation (1)
- CET 2160 Civil Engineering Graphics (4)
- SURV 2221 Surveying I (4)
- SURV 3222 Surveying II (4)
- SURV 3421 Geographic Information Systems (4)

Technical Communication Concentration (15 credits)

This concentration will give students a basic understanding of the principles and terminology involved in technical writing.

- TCOM 2000 Business Communication (3)
- TCOM 2010 Technical Writing (3)
- Any three TCOM courses numbered 3000 or above (9)

Technology and the Law (Pre-Law) Concentration (15 credits)

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 majors with additional coursework that will better prepare them for pursuing a career in law upon graduation with a B.S. in International Studies.

- **American Context Core: Take both courses not used to satisfy General Core** (6)
  HIST 2111 U.S. History I
  HIST 2112 U.S. History II
  POLS 1101 American Government
- **Technology and the Law Electives: Select three courses** (9)
  CNST 4760 Construction Law
  MGNT 3145 Legal Environment of Business
  POLS 3201 Constitutional and International Law
  POLS 3301 Modern Political Theory
  POLS 3401 Regulatory and Environmental Law
  POLS 3501 Intellectual Property Issues

Minor in International Studies
To be eligible for a minor in International Studies, the student must complete the following:

1. Select one course from the following:
   SIS 2903 Special Topics in Studies Abroad
   SIS 400x Regional Studies

2. Select four courses not used to satisfy core requirements from the following list.
   No more than two can be numbered below 2900.
   ANTH 1102 Introduction to Anthropology
   ECON 1101 Introduction to Economics
   GEOG 1101 Introduction to Human Geography
   GEOG 3101 World Regional Geography
   HIST 1111 World Civilization to 1500
   HIST 1112 World Civilization since 1500
   HIST 3301 Diplomatic and Military History Since 1815
   HIST 3401 Social and Cultural History During the 20th Century
   HIST 3501 Colonization and Rebellion in the Trans-Atlantic World
   HSIT 3601 History of the Pacific Rim
   HIST 3801 Contemporary World History Since 1945
   MGNT 4145 International Management
   POLS 2401 Global Issues
   POLS 2801 Comparative Politics
   POLS 3101 International Political Economy
   POLS 3601 Contemporary World Politics
   POLS 4101 Political Economy of Post-Communist Transformation
   PSYC 3101 International Social Psychology
   RELG 1200 World Religion
   SIS 3600 Comparative Culture
   SIS 3903 Special Topics in International Studies
   SIS 400x Regional Studies (different from 1.)
   SIS 4100 Cross-National Technology Policy Analysis
   STS 4000 International Issues in Science and Technology
   STS 4000 Topical Studies in Science and Technology

3. Demonstrate proficiency in a foreign language, or complete FREN 1002, GRMN 1002 or SPAN 1002.

Selected Course Descriptions Related to the International Studies Degree

ECON 1101
Introduction to Economics
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. Prerequisite: MATH 1111.

POLS 1101
American Government
3-0-3

A study of the structure and function of the federal government from its historical antecedents to its contemporary challenge. Satisfies U.S. and Georgia history and government requirement.

POLS 2401
Global Issues
3-0-3

An introduction to international relations covering such issues as diplomacy, nuclear politics, war, secret intelligence, revolution, international development, debt, and dependence.

POLS 2801
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. Pre-requisite: POLS 2401

POLS 3101
International Political Economy
3-0-3

Discusses the major international governmental and non-governmental organizations that are involved in global trade, finance and development. Besides introducing the student to various theoretical frameworks in international political economy, the course examines the interrelationships among political, economic and social forces through the use specific case studies. Prerequisite: POLS 2401

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.

POLS 3601
Contemporary World Politics
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. Prerequisite: POLS 2401

POLS 4101
Political Economy of Post-Communist Transformation 3-0-3

This course examines the political and economic processes of reform in a variety of post-socialist societies. A significant portion of the course will involve a discussion of the impediments to reform in either domain, as well as the significant barriers to economic competition in the world marketplace. Prerequisite: POLS 2401.

SIS 3600
Comparative Culture
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. Prerequisite: Proficiency in second language or consent of the department head

SIS 3901-3903
Special Topics in International Studies

Special topics in international issues. Offered by the department on a demand basis. 1 to 3 hours.

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/Eastern Europe
3-0-3

Focuses on the political, economic, and social forces within Russia and/or Eastern 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
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. Prerequisite: Completion of core Area E, group 2 or group 4 or permission of the instructor

SIS 4600
Global Technology Internship
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. Prerequisite: Junior status

SPAN 2001
Intermediate Spanish I
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. Prerequisite: SPAN 1002 or equivalent.

SPAN 2002
Intermediate Spanish II
3-0-3

A continuation of SPAN 2001. Not open to native speakers of Spanish. Prerequisite: SPAN 2001 or equivalent.

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.

Mathematics

Offering:

Bachelor of Science in Mathematics
Bachelor of Arts in Mathematics

Mathematics

(Bachelor of Arts and Bachelor of Science Degrees Offered)

A Bachelor of Science in Mathematics encompasses the breadth of Mathematics and its applications in a small, friendly, and supportive setting. Courses in differential equations, analysis, calculus, discrete mathematics, and linear and abstract algebra combine a theoretical and applied understanding of these areas. Additional courses in Physics and Computer Science explore how Mathematics can be used to solve real-world problems.

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.

Mathematics is the foundation upon which all other technical fields rest, and as such, is the perfect choice for students who have a profound mathematical curiosity, and a desire to apply their problem solving skills. The soaring demand for employees with specialized mathematical expertise allows graduates to follow a wide variety of career paths. Many work in fields that, while not specifically described as mathematical, require clear reasoning, logical thought, and a love and understanding of mathematics. Persons with degrees in mathematics may be found pursuing such diverse careers as actuarial science, education, consulting, systems analysis and quality control, and jobs in industry or government. Others go on to graduate work in mathematics or other mathematics-related fields, such as Computer Science.

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.

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

Our professors are professionals with a sincere commitment to teaching. The Mathematics Department at SPSU boasts a faculty that includes a National Science Foundation grant recipient, four University System of Georgia Teaching/Learning Grant recipients, as well as several awards for outstanding teaching by the Student Government Association and the SPSU faculty.

The Faculty:

Shangrong Deng	Associate Professor
Meighan I. Dillon	Professor
Steven R. Edwards	Professor
Joseph N. Fadyn	Professor
Joel C. Fowler	Associate Professor
William Griffiths	Assistant Professor
Paul Johnson	Instructor
Andrew G. McMorran	Professor and Department Chair
Jack R. Pace	Associate Professor
Nicolae Pascu	Assistant Professor
Laura Ritter	Assistant Professor
Long L. Wang	Assistant Professor,
Taixi Xu	Assistant Professor

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.

Requirements for the Mathematics Bachelor of Arts

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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		Any Two Lab Sciences	8
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
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
MATH	1113	Pre-calculus	4
MATH	2253	Calculus I	4
MATH	2254	Calculus II	4
MATH	2255	Calculus III	4
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**

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**

Guided Electives **8**

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

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.

Requirements for the Mathematics Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
PHYS	2211K	Principles of Physics I	4
PHYS	2212K	Principles of Physics II	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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 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
CS	1301	Computer Science I	4
CS	1302	Computer Science II	4
MATH	1113	Pre-calculus	4
MATH	2253	Calculus I	4
MATH	2254	Calculus II	4
MATH	2255	Calculus III	4
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.

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.

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.

Mathematics

MATH 1111
College Algebra
Prerequisite: 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
Pre-calculus
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 for 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: MATH 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 and 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 3396
Combinatorics
Prerequisite: MATH 2345
3-0-3

Enumeration and graph theory. Topics in enumeration include combinatorial identities, recurrence relations, and generating functions. Topics in graph theory include Eulerian and Hamiltonian paths and circuits, planarity, and coloring.

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 equation, 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

Offering:

Bachelor of Science in Mechanical Engineering Technology

Mechanical Engineering Technology

(Bachelor of Science Degree Offered)

Technology is rapidly changing machinery, systems, and the industries that produce them. If you want your career to grow just as rapidly—and offer you interesting problems to solve every day—this program gives you plenty of hands-on experience. The Mechanical Engineering Technology degree leads to diverse, well-paid specialties, from manufacturing operations and management to systems design, sales, and plant engineering. Working step by step with your professors and fellow students, you'll learn to apply engineering concepts in many industrial settings. In the process, you'll gain marketable skills and a proven degree.

Building on core courses in calculus and physics, our curriculum develops your hands-on ability to solve engineering problems. A strong background in algebra and trigonometry can enable you to opt out of pre-calculus and move more quickly toward courses where you design machines, tools, and manufacturing systems. These classes teach you to go beyond the analysis of existing solutions, by creating designs that maximize efficiency and save costs.

In the lab, in your first year, welding and metal cutting helps you understand how materials and machinery behave—and how to specify or design materials economically. Combined with your core courses, these fundamentals prepare you to use CAD software and advanced equipment, such as the three-dimensional prototype printer, in hands-on design. One example: Our students fabricate a complete yo-yo assembly system that operates with no hand touching. These challenges help you develop a very organized way of documenting your solutions—whether you're making a power plant more efficient or specifying architectural support equipment.

Bridging the gap between research engineers and skilled technicians, our graduates fill a vital role in many industries. Elective courses offer students the opportunity to concentrate in an area of specialization, and every student masters such marketable skills as graphics, manufacturing processes, and clear communication on team projects. MET careers challenge our alumni in exciting ways, and many of our students are employment-ready before graduation.

On our award-winning aerial robotics team, MET students use technology to fly robotic, computer-controlled machines over a simulated disaster area.

Our students have won best design in the Society of Automotive Engineers' Supermileage Competition numerous times. Students build a one-person, fuel-efficient vehicle based on a small, four-cycle engine that sets world fuel economy records.

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.

The Faculty:

Robert Glenn Allen	Associate Professor
Mir M. Atiqullah	Associate Professor
Gregory M. Conrey	Associate Professor
Donald D. Horton	Associate Professor
Simin Nasseri	Assistant Professor
Norman A. Russell	Associate Professor
Julio Santander	Associate Professor
John F. Sweigart	Associate Professor and Department Chair

The Program:

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.

Requirements for the Mechanical Engineering Technology - Bachelor of Science

CHEM	1211K	Principles of Chemistry I	4
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
ENGL	2010	Technical Writing	3
MATH	1113	Pre-calculus (the extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2306	Ordinary Differential Equations	3
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
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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 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
CS	2123	C Programming	3
ECET	3000	Electrical Principles	4
ENGR	1211	Engineering Graphics I	4
ENGR	1212	Engineering Graphics II	4
ENGR	3101	Fluid Mechanics	4
ENGR	3121	Statics	3
ENGR	3122	Dynamics	3
ENGR	3131	Strength of Materials	4
MET	1000	MET Orientation	1
MET	1311	Manufacturing Processes	3
MET	1321	Manufacturing Processes Lab I	2
MET	2322	Manufacturing Processes Lab II	3
MET	3132	Engineering Materials	4
MET	3401	Thermodynamics I	3
MET	4141	Machine Design I	4
MET	4421	Instruments and Controls	4
Select **one of the following three courses**			3
	MET 3123	Dynamics of Machines	
	MET 3331	Tool Design	
	MET 3402	Thermodynamics II	3
MET	XXXX	Major Electives	12
		Free Elective	3

Degree Program Total **129**

NOTES:
1. MET majors are required to earn an overall 2.0 average in all courses designated as MET and ENGR.
2. PHYS 1111K and PHYS 1112K may be substituted for PHYS 2211K and PHYS 2212K.
3. The Free Elective may not be MATH 1111.

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 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 3132
Engineering Materials
Prerequisites: CHEM 1211K; Co-requisite: ENGR 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, ENGR 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: ENGR 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, ENGR 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, ENGR 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: ENGR 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, ENGR 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.

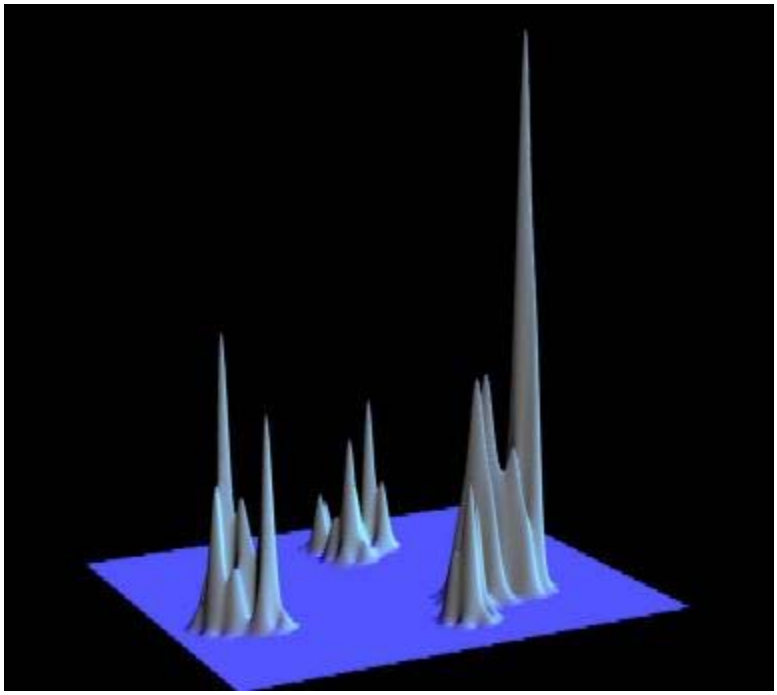
MET 4901-4905
Special Topics
Prerequisite: Consent of the Department Chair
1 to 5 hours

Special topics selected by the program. Offered on a demand basis.

Physics

Offering:

Bachelor of Science in Physics
Bachelor of Arts in Physics



Physics

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

A Bachelor of Science degree in Physics at Southern Polytechnic State University is a good choice for students desiring positions in industry that are on the cutting edge of engineering and science. These positions offer great opportunity at the entry level and a strong career path with excellent earning potential.

The flexibility afforded by a SPSU physics degree is most attractive. With the proper choice of a minor field of study, our physics majors are prepared to obtain employment in such diverse areas as science and/or engineering positions in industry, technical sales, or scientific programming.

Because most physics majors go on to graduate study, we offer a capstone review course. Those planning to work immediately after graduation may opt to do independent projects that position them competitively for the marketplace.

Physics researchers are using lasers to detect biological and chemical agents, analyzing cell-based communications to learn how heart disease occurs, and testing pigments to authenticate works of art. This science is a keystone of technological progress; it also underlies all of engineering, and it is a useful second major for those pursuing degrees in mathematics, electrical or mechanical engineering technology. All of our physics students receive job offers that put them in the front lines of fascinating careers and maximize their earnings potential.

Our graduates have been hired by respected organizations like Applied Decision Analysis, Inc., Argonne Labs, Barco Chromatics, BellSouth Mobility, Cape International Management, Inc., Flexible Products Company, Georgia Department of Agriculture, Gallet & Associates, Hulsey Seed Laboratory, Inc., Institute of Paper Science & Tech, Inc., Law Engineering & Environment Serv. Inc., Lockheed, Lucas Body Systems NA, NASA, National Science Foundation, Nortel Telecommunications, Nova Engineering & Environment, Osmose Wood Preserving, Inc., Southern Company, and VA's CDI Corporation.

SPSU physics majors meet the educational portion of requirements for registration as a professional engineer in most states. For students wishing to continue in higher education at the graduate level, additional career paths are available in teaching, research, law, medicine, and engineering.

Advisors for our physics majors work closely with students in choosing electives to meet very individual career objectives. Students may also choose to earn double majors in physics and engineering technology.

Two significant advantages of majoring in physics at SPSU are our small, personalized classes and our outstanding distinguished faculty. All physics courses for our majors are taught by men and women holding Ph.D. degrees.

The Faculty:

Russell S. Patrick	Professor
Philip E. Patterson	Assistant Professor and Department Chair
Michael G. Thackston	Professor
James B. Whitenton	Professor

Requirements for the Physics Bachelor of Arts

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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
MATH	2253	Calculus I	4
Area D		Any Two Lab Sciences	8
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
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2255	Calculus III	4
MATH	2306	Ordinary Differential Equations	3
PHYS	2211K	Principles of Physics I	4
PHYS	2212K	Principles of Physics II	4
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			8
International Studies or Spanish Minor			15
Upper Division Physics Electives			4
Degree Program Total			120

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.

Requirements for the Physics Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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		Any Two Lab Sciences	8
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
MATH	1113	Pre-calculus (extra hour is applied to area F)	4
MATH	2253	Calculus I (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2255	Calculus III	4
MATH	2306	Ordinary Differential Equations	3
PHYS	2211K	Principles of Physics I	4
PHYS	2212K	Principles of Physics II	4
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
Directed Electives approved by the program			11– 17
Upper Division Physics Electives			4 - 10
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:

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

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.

Physics

PHYS 1111K
Introductory Physics I
Prerequisite: MATH 1113
3-3-4

An introductory course which will include material from mechanics (kinematics, dynamics, work and energy, momentum and collisions, and rotational motion and statics), and may also include 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 electrostatics, electric current and circuits, and electromagnetism, and may also include 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 (kinematics, dynamics, work and energy, momentum and collisions, and rotational motion and statics), and may also include thermodynamics and waves. Elementary 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 electrostatics, electric current and circuits, and electromagnetism, and may also include optics, and modern physics. Elementary 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.

PHYS2213
Introduction to Thermal and Modern Physics
Prerequisites: MATH2254, (PHYS2211 or PHYS1111) and (PHYS2212 or PHYS1112)
2-0-2

An introductory course that will include thermal physics (thermal properties of matter, first and second laws of thermodynamics), and modern physics (relativity, quantum theory, atoms, nuclei). Elementary calculus will be used.

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

Offering:

Bachelor of Science in International Studies
Concentration in Political Science
The Bachelor of Science in International Studies
Concentration in Technology and the Law (Pre-Law)

Political Science

(Bachelor of Science Degree Offered in International Studies—Concentration in Political Science)
(Bachelor of Science Degree Offered in International Studies—Concentration in Technology and the Law (Pre-Law))

The Faculty:

Richard Bennett	Associate Professor
Albert Churella	Associate Professor
J. LaJuana Cochrane	Associate Professor
Maryanne. Holdzkom	Lecturer
Julie Newell, Professor	Chair of Department
Thomas J. Nisley	Assistant Professor
Bernice Nuhfer-Halten	Professor
Thomas E. Rotnem	Assistant Professor
Mark D. Vickrey	Lecturer

The Political Science program is part of the Department of Social and International Studies, in the School of Arts and Sciences at Southern Polytechnic State University. By offering an International Studies degree with concentrations in Political Science, SPSU is seeking to produce graduates who not only understand the historical, political and economic processes of globalization, but who also possess the technological skills and knowledge that will allow them to deal with the new demands of a more global society.

The International Studies—Political Science degree will prepare graduates for employment in:

International business	Pre-law
Intelligence	Government
Graduate study	Public policy
The non-profit sector	

Students pursuing this degree must complete:

- The Core Curriculum 60
- Required Upper Division Core in international studies 24
- The Political Science or Pre-Law concentration 15
- Directed International Electives 9
- Free Electives 8-11

Any courses taken to satisfy degree program requirements must be passed with a grade of "C" or better:

Requirements for the Bachelor of Science in International Studies—Concentration in Political Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two Courses in Laboratory Science	8
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ECON	1101	Introduction to Economics	3
HIST	1111	Survey of World Civilization pre 1500	3
HIST	1112	Survey of World Civilization post 1500	3
HIST	2111	United States History I	3
HIST	2112	United States History II	3
HIST	3801	Contemporary World History post 1945	3
International Electives: Take any three of the following courses:			9
	ECON	2106 Macroeconomics	
	GEOG	3101 World Regional Geography	
	RELG	1200 World Religions	
	SIS	390x Special Topics in International Studies	
	SIS	4600 Internship	
	SPAN	300x Spanish (or other language at similar level)	
	STS	4400 Topical Studies in Science and Technology	
POLS	1101	American Government	3
POLS	2401	Global Issues	3
POLS	2801	Comparative Politics	3
POLS	3101	International Political Economy	3
POLS	3201	Constitutional and International Law	3
POLS	3301	Modern Political Theory	3
POLS	3601	Contemporary World Politics	3
Political Science Electives: Take any one of the following courses			3
	POLS	4101 Political Economy of Post-Communist Transformation	
	SIS	400x Regional Studies	
PSYC	3101	International Social Psychology	3
SIS	3600	Comparative Culture	3
SIS	400x	One Course in Regional Studies	3
SIS	4100	Cross National Technology Policy Analysis	3
SPAN	2001	Intermediate Spanish I*	3
SPAN	2002	Intermediate Spanish II*	3
	Or another language at a similar level		
STS	4000	International Issues in Science and Technology	3
STS	4800	Capstone Seminar	3

Free Electives	8
Degree Program Total	120

Requirements for the Bachelor of Science in International Studies—Concentration in Technology and the Law (Pre-Law)

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two Courses in Laboratory Science	8
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ECON	1101	Introduction to Economics	3
HIST	1111	Survey of World Civilization pre 1500	3
HIST	1112	Survey of World Civilization post 1500	3
HIST	2111	United States History I	3
HIST	2112	United States History II	3
HIST	3801	Contemporary World History post 1945	3
International Electives: Take any three of the following courses:			9
	ECON	2106 Macroeconomics	
	GEOG	3101 World Regional Geography	
	RELG	1200 World Religions	
	SIS	390x Special Topics in International Studies	
	SIS	4600 Internship	
	SPAN	300x Spanish (or other language at similar level)	
	STS	4400 Topical Studies in Science and Technology	
POLS	1101	American Government	3
POLS	2401	Global Issues	3
POLS	2801	Comparative Politics	3
POLS	3101	International Political Economy	3
Pre-Law Electives: Take any three of the following courses			9
	CNST	4760 Construction Law	
	MGNT	3145 Legal Environment of Business	
	POLS	3201 Constitutional and International Law	
	POLS	3301 Modern Political Theory	
	POLS	3401 Regulatory and Environmental Law	
	POLS	3501 Intellectual Property Issues	
PSYC	3101	International Social Psychology	3
SIS	3600	Comparative Culture	3
SIS	400x	One Course in Regional Studies	3
SIS	4100	Cross National Technology Policy Analysis	3
SPAN	2001	Intermediate Spanish I*	3
SPAN	2002	Intermediate Spanish II*	3
	Or other language at a similar level		
STS	4000	International Issues in Science and Technology	3
STS	4800	Capstone Seminar	3

Free Electives	11
Degree Program Total	120

Political Science Courses

POLS 1101
American Government
3-0-3

A study of the structure and function of the federal government from its historical antecedents to its contemporary challenge. Satisfies U.S. and Georgia history and government requirement.

POLS 2401
Global Issues
3-0-3

An introduction to international relations covering such issues as diplomacy, nuclear politics, war, secret intelligence, revolution, international development, debt, and dependence.

POLS 2801
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. Pre-requisite: POLS 2401

POLS 3101
International Political Economy
3-0-3

Discusses the major international governmental and non-governmental organizations that are involved in global trade, finance and development. Besides introducing the student to various theoretical frameworks in international political economy, the course examines the interrelationships among political, economic and social forces through the use specific case studies. Prerequisite: POLS 2401

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.

POLS 3601
Contemporary World Politics
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. Prerequisite: POLS 2401

POLS 4101
Political Economy of Post-Communist Transformation 3-0-3

This course examines the political and economic processes of reform in a variety of post-socialist societies. A significant portion of the course will involve a discussion of the impediments to reform in either domain, as well as the significant barriers to economic competition in the world marketplace. Prerequisite: POLS 2401.

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 2901-2903
Special Topics in Studies Abroad

Special topics or projects for students participating in a studies abroad program. Offered by the department on a demand basis. 1 to 3 hours

SIS 3600
Comparative Culture
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. Prerequisite: Proficiency in second language or consent of the department head

SIS 3901-3903
Special Topics in International Studies
Special topics in international issues. Offered by the department on a demand basis. 1 to 3 hours.

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/Eastern Europe
3-0-3

Focuses on the political, economic, and social forces within Russia and/or Eastern 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
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. Prerequisite: Completion of core Area E, group 2 or group 4 or permission of the instructor

SIS 4600
Global Technology Internship
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. Prerequisite: Junior status

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.

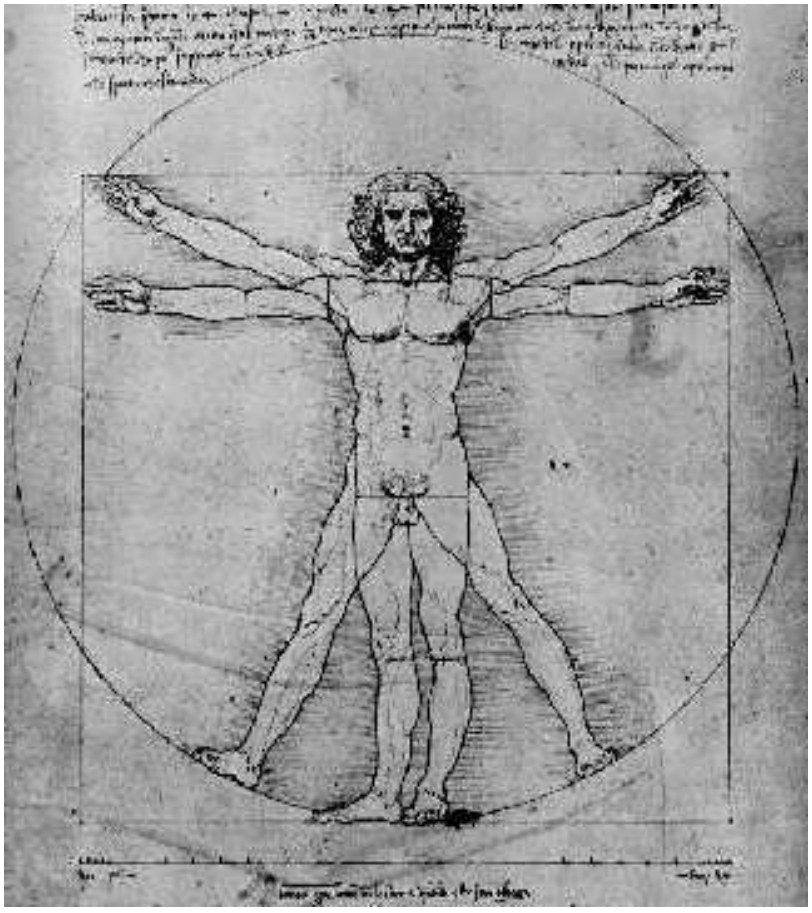
STS 4800
Global Technology Seminar
Prerequisite: Completion of international studies upper division core and senior status OR permission of the instructor
3-0-3

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.

Social Science

Offering:

Bachelor of Science in International Studies
Concentration in Social Science



Social Science

(Bachelor of Science Degree Offered in International Studies—Concentration in Social Science)

The Faculty:

Richard Bennett	Associate Professor
Albert Churella	Associate Professor
J. LaJuana Cochrane	Associate Professor
Maryanne. Holdzkom	Lecturer
Julie Newell, Professor	Chair of Department
Thomas J. Nisley	Assistant Professor
Bernice Nuhfer-Halten	Professor
Thomas E. Rotnem	Assistant Professor
Mark D. Vickrey	Lecturer

The Social Science program is part of the Department of Social and International Studies, in the School of Arts and Sciences at Southern Polytechnic State University. By offering an International Studies degree with concentrations in Social Science, SPSU is seeking to produce graduates who not only understand the historical, political and economic processes of globalization, but who also possess the technological skills and knowledge that will allow them to deal with the new demands of a more global society.

The International Studies—Social Science degree will prepare graduates for employment in:

International business	Pre-law
Intelligence	Government
Graduate study	Public policy
The non-profit sector	

Students pursuing this degree must complete:

- The Core Curriculum 60
- Required Upper Division Core in international studies 24
- The Social Science concentration 15
- Directed International Electives 9
- Free Electives 14

Any courses taken to satisfy degree program requirements must be passed with a grade of "C" or better:

Requirements for the Bachelor of Science in International Studies—Concentration in Social Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	D	Two Courses in Laboratory Science	8
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ECON	1101	Introduction to Economics	3
HIST	3801	Contemporary World History post 1945	3
International Electives: Take any three of the following courses:			9
	ECON	2106 Macroeconomics	
	GEOG	3101 World Regional Geography	
	RELG	1200 World Religions	
	SIS	390x Special Topics in International Studies	
	SIS	4600 Internship	
	SPAN	300x Spanish (or other language at similar level)	
	STS	4400 Topical Studies in Science and Technology	
POLS	2401	Global Issues	3
POLS	2801	Comparative Politics	3
POLS	3101	International Political Economy	3
PSYC	3101	International Social Psychology	3
SIS	3600	Comparative Culture	3
SIS	400x	One Course in Regional Studies	3
SIS	4100	Cross National Technology Policy Analysis	3
Social Science Orientation: Select any two of the following courses:			6
	ANTH	1102 Introduction to Anthropology	
	GEOG	1101 Introduction to Human Geography	
	POLS	3601 Contemporary World Politics	
	RELG	1200 World Religions	
	Note: If not used to satisfy other requirements		
Social Science Electives: Select any three of the following courses:			9
	HIST	Any History course not used to satisfy other requirements	
	PSYC	Any Psychology course not used to satisfy other requirements	
	POLS	Any Political Science course not used to satisfy other requirements	
	SIS	Any SIS course not used to satisfy other requirements	
	SPAN	3003 Hispanic Cultures and Civilizations	
	Note: Only one course may be selected from each discipline		
SPAN	2001	Intermediate Spanish I*	3
SPAN	2002	Intermediate Spanish II*	3
	Or other language at a similar level		
STS	4000	International Issues in Science and Technology	3
STS	4800	Capstone Seminar	3
Free Electives			14
Degree Program Total			120

Anthropology Course

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.

Geography Courses

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
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. Prerequisite: GEOG 1101 or consent of the department head.

Political Science Courses

POLS 1101
American Government
3-0-3

A study of the structure and function of the federal government from its historical antecedents to its contemporary challenge. Satisfies U.S. and Georgia history and government requirement.

POLS 2401
Global Issues
3-0-3

An introduction to international relations covering such issues as diplomacy, nuclear politics, war, secret intelligence, revolution, international development, debt, and dependence.

POLS 2801
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. Pre-requisite: POLS 2401

POLS 3101
International Political Economy
3-0-3

Discusses the major international governmental and non-governmental organizations that are involved in global trade, finance and development. Besides introducing the student to various theoretical frameworks in international political economy, the course examines the interrelationships among political, economic and social forces through the use specific case studies. Prerequisite: POLS 2401

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.

POLS 3601
Contemporary World Politics
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. Prerequisite: POLS 2401

POLS 4101
Political Economy of Post-Communist Transformation 3-0-3

This course examines the political and economic processes of reform in a variety of post-socialist societies. A significant portion of the course will involve a discussion of the impediments to reform in either domain, as well as the significant barriers to economic competition in the world marketplace. Prerequisite: POLS 2401.

Psychology Courses

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

Special topics in psychology. Offered by the department on a demand basis. 1 to 3 hours Prerequisite: Consent of the department head

Religion Course

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 Courses

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 2901-2903
Special Topics in Studies Abroad

Special topics or projects for students participating in a studies abroad program. Offered by the department on a demand basis. 1 to 3 hours

SIS 3600
Comparative Culture
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. Prerequisite: Proficiency in second language or consent of the department head

SIS 3901-3903
Special Topics in International Studies
Special topics in international issues. Offered by the department on a demand basis. 1 to 3 hours.

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/Eastern Europe
3-0-3

Focuses on the political, economic, and social forces within Russia and/or Eastern 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
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. Prerequisite: Completion of core Area E, group 2 or group 4 or permission of the instructor

SIS 4600
Global Technology Internship
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. Prerequisite: Junior status.

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

Offering:

Bachelor of Science in Software Engineering

Software Engineering

(Bachelor of Science in Software Engineering Degree)

Why study Software Engineering at SPSU?

Software engineering represents the fastest growing segment of software professionals -- men and women who solve problems and issues in the development and engineering of mission-critical software systems to meet the requirements of business and industry in a *reliable*, *secure*, *timely*, and *cost-effective* manner. At Southern Polytechnic, our Software Engineering students learn real-time strategies and procedures that will give them a competitive edge in the market. Coursework includes software design techniques, software quality, software project management, and electives such as component-based software, embedded systems design, game design, etc. This is the only Software Engineering program at the undergraduate level in Georgia and one of the few in the nation.

The Faculty:

Each faculty member in Software Engineering has his or her own specialty, e.g., object-oriented design, large scale systems, user-centered design, etc. Some of our faculty members have extensive industry experience managing systems and software development. They pass their expertise in the professional field along to their students, who go on to succeed professionally as well.

Venu G. Dasigi	Professor and Chair of Computer Science and Software Engineering
Sheryl L. Duggins	Professor
Hassan Pournaghshband	Professor
Barbara B. Thomas	Professor
Frank Tsui	Associate Professor

Are there learning opportunities outside the classroom?

Our students can participate in the Aerial Robotics Club on campus, which placed second in the 2001 international competition sponsored by the Association for Unmanned Vehicle Systems for an automatic pilot guiding program that was written for SPSU's aerial robotics machines. Students have internship and co-op opportunities, as well.

What can I do with a Software Engineering degree?

With a Software Engineering degree, you are equipped to enter a variety of positions, from real-world, large-scale software development and testing to software project management. You gain a foundation in computer science and learn many useful skills and tools that are immediately applicable, and are well on your way to lifelong learning in the rapidly changing technological workplace.

Will I find employment?

According to a recent report from the Bureau of Labor Statistics, the top two of ten jobs with the fastest growth and highest median salaries are related to systems and applications software engineering. Our close proximity to Atlanta opens up a world of internship, co-op, and full-time work opportunities to our students, as Atlanta is home to many major corporations that welcome SPSU students.

The Program:

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

Requirements for the Software Engineering Bachelor of Science

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
TCOM	2010	Technical Writing	3
MATH	2253	Calculus I (extra hour is applied to area F)	4
MATH	2254	Calculus II	4
MATH	2345	Discrete Mathematics	3
MATH	2260	Probability & Statistics I	3
Math/Science Electives		(Math -level of Calc 2253 or higher; Science -level of Area D or higher)	6
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
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		Take Two Courses From the Laboratory Sciences Group (excluding Phys 1111 & 1112)	8
PHYS	2211K	Principles of Physics I	4
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
SWE	1301	Software Development I	4
SWE	1302	Software Development II	4
SWE	2642	Professional Practices & Ethics	2
CS	1002	Introduction to The Computing Disciplines (for institutional credit only)	2
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
SWE	2313	Introduction to Software Engineering	3
SWE	3623	Software Systems Requirements	3
SWE	3633	Software Systems Architecture	3
SWE	3643	Software Testing & QA	3
SWE	4324	User-Centered Design	4
SWE	4663	Software Project Management	3
SWE	4724	Software Engineering Project	4
SWE Major Electives		Choose 3 courses from the list below:	9
Free Elective			6
Degree Program Total			**127**

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

You may choose any three courses from the list below to satisfy the SWE major electives. If you choose three courses in the same group, you can earn a certificate along with your degree.

1. Gaming Systems

SWE	4353	Computer Game Design & Development	3
SWE	4783	User Interaction Engineering	3
CS	4363	Computer Graphics & Multimedia	3

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

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 3623
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 2313
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 2313) 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 or CS 3153
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 3424
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 2313

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 4624 or three of these four: SWE 3623, SWE 3633, SWE 3643, SWE 4663)
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 2313 or SWE 4624
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
SWE 6623 Software Engineering I
SWE 6633 Software Project Management
SWE 6723 Software Engineering II
SWE 6743 Object-Oriented Analysis and Design
SWE 6753 Computer Game Design & Development
SWE 6763 Software Metrics and Quality Management
SWE 6783 User Interaction Engineering
SWE 6813 Component Based Software Development
SWE 6823 Embedded Systems Analysis and Design
SWE 6843 Embedded Systems Construction and Testing
SWE 6883 Formal Methods in Software Engineering
SWE 6901-6903 Special Topics
SWE 7803 Master's Thesis
SWE 7903 Software Engineering Capstone

Technical Communication

Offering:

Bachelor of Science in Technical Communication

Technical Communication

(Bachelor of Science Degree Offered)

Southern Polytechnic's degrees in technical communication are among the best in the nation. Our faculty in TCOM includes two winners of the coveted Jay R. Gould award for outstanding teaching from the Society for Technical Communication. Because we are housed in a small engineering tech school, we can offer a much wider range of courses than similar programs at more traditional schools, and we have the up-to-date hardware and software to support them. You will get a solid grounding in rhetoric as well as hands-on experience with new media tools and technologies.

No matter which degree you're seeking, you will learn much more than just how to use words effectively—you will have opportunities to learn document design, graphics, multimedia, web design, and video production as well as science and environmental writing, proposal writing, and medical communication.

In addition, you may take an online graduate certificate in technical communication, consisting of 6 courses (18 credit hours of class work) plus a capstone portfolio project (2 credit hours).

Many TCOM courses are taught using a combination of on-site and online sessions that students with jobs especially appreciate. We make sure we offer enough evening, late-afternoon, and Saturday courses so that working students can make steady progress toward their degree.

The Faculty:

Carol Barnum	Professor
Terry Carter	Assistant Professor
Hahn, Richard	Lecturer
Kim Haimes-Korn	Associate Professor
Jack Haley	Instructor
Keith B. Hopper	Associate Professor
John Lindsay	Instructor
Monique Logan	Instructor
Mark Nunes	Associate Professor and Department Chair
Betty Oliver	Professor
Iraj Omidvar	Assistant Professor
Jeffrey Orr	Instructor
Ann Parker	Instructor
Nancy L. Reichert	Associate Professor
Michele Shauf	Assistant Professor
Cheryl Shinall	Instructor
Herbert J. Smith	Associate Professor
Charlotte Stephenson	Instructor
Mark K. Stevens	Associate Professor
Thomas Wiseman	Associate Professor

The Program:

The Bachelor's programs in Technical Communication is 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)
- A group of major courses
- 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.

Included below are the complete requirements for the programs.

Bachelor of Science in Technical Communication

ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
ENGL	3030	Grammar for Professional Communicators	3
MATH	1111	College Algebra	3
MATH	1113	Pre-Calculus I	4
Math or Science Elective		See Note 1	3
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology, and Society	2
STS	4000	Science, Technology, and Society	3
	OR		
STS	4400	Topical Studies in Science and Technology	3
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		Any Two Lab Sciences	8
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
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 Communication	3
TCOM	4030	Foundations of Graphics	3
TCOM	4100	Small Group Communication	3
TCOM	4160	Rhetoric: History, Theory, and Practice	3
TCOM	4600	Independent Study	3
TCOM	4700	Internship	3
TCOM	4800	Project Portfolio	3

Technical Electives Take any TCOM, SIS, STS, or ENGL electives	16
Free Electives	4
Technical Communication or Digital Media and Graphics Concentration (See Courses Below)	15
Degree Program Total hours	120

Concentrations:

Technical Communication 15 hours

TCOM	3030	Instructional Design	3
TCOM	3045	Fundamentals of Information Design	3
TCOM	4000	Professional Editing	3
TCOM	4070	User Documentation	3
TCOM	4120	Usability Testing	3

Digital Media and Graphics 15 hours

ARTS	3000	Visual Thinking	3
TCOM	4035	Fundamentals of Website Design	3
TCOM	4045	Foundations of Multimedia	3
TCOM	4050	Applied Graphics for Technical Communicators	3
TCOM	4130	Online Documentation	3
TCOM	4170	Video Production	3

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

For additional information about the B.A. program, contact the English, Technical Communication, and Media Arts Department. The number is 678-915-7202 or write to TCOM@spsu.edu. Visit our website at www.spsu.edu/etma for more information

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.)

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.

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 are 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 Dream Weaver and FrontPage.

TCOM 4040
Applied Graphics for Technical Communicators
Pre- or co-requisite: TCOM 2010, TCOM 2040, and TCOM 2040
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 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 Courses

IDC 6001 Technical Writing and Editing
IDC 6002 Information Design
IDC 6003 Advanced Editing
IDC 6004 Advanced Research
IDC 6030 Foundations of Graphics
IDC 6040 Applied Graphics
IDC 6045 Foundations of Multimedia
IDC 6050 Applied Multimedia
IDC 6060 International Technical Communication
IDC 6070 User Documentation
IDC 6080 Professional Oral Presentations
IDC 6090 Medical Communication
IDC 6110 Communications Project Management
IDC 6120 Usability Testing
IDC 6130 Online Documentation
IDC 6135 Website Design
IDC 6140 Instructional Systems Design
IDC 6145 Performance Technology
IDC 6150 Marketing Communication
IDC 6160 Rhetoric: History, Theory, and Practice
IDC 6165 Writing Style in the Workplace
IDC 6170 Video Production
IDC 6901-6903 Special Topics
IDC 7503 Independent Study
IDC 7601-7603 Master's Internship
IDC 7801-7803 Master's Thesis

Textile Engineering Technology

Offering:

Bachelor of Science in Industrial Engineering Technology—Concentration in Textile Engineering Technology

Industrial Engineering Technology—
Textile Engineering Technology Concentration

The Textile Engineering Technology program is part of the Industrial Engineering Technology Department, in the School of Engineering Technology and Management. The apparel/textile industry is one of the largest in the United States. This broad industry includes:

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

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.

From the sourcing and testing of raw materials to the shipment and sale of the finished product, Textile Engineering Technology graduates can expect creative and challenging careers. There are excellent opportunities for qualified people to move rapidly into executive-level positions.

Faculty:

Thomas Ball	Lecturer
Walter Thomas	Professor

Requirements for the Bachelor of Science in Industrial Engineering Technology—Concentration in Textile Engineering Technology

ACCT	2101	Accounting I	3
CHEM	1211K	Principles of Chemistry I	4
ENGL	1101	Composition I	3
ENGL	1102	Composition II	3
IT	1113	BASIC Programming	3
MATH	1113	Pre-Calculus	4
MATH	2253	Calculus I	4
PHYS	2211K	Principles of Physics I	4
PHYS	2212K	Principles of Physics II	4
SPCH	2400	Public Speaking	2
STS	2400	Science, Technology and Society	2
TCOM	2010	Technical Writing	3
Area	C1	Course in Literature	3
Area	C2	Course in Art and Culture	3
Area	E1	American Perspective	3
Area	E2	World History	3
Area	E3	Course in Behavioral Science	3
Area	E4	Course in Cultures and Societies	3
ATT	1100	Fiber Formation	3
ATT	2100	Yarn Formation	3
ATT	2500	Fabric Formation	3
ATT	3300	Introduction to Composites	2
ATT	3700	Carpet Manufacturing	3
ATT	3830	Non-Woven Technology	2
ATT	4320	Textile Wet Processing	3
ATT	4440	Testing and Quality Control	4
ATT	4800	Textile Management Internship	1
ATT	4810	Ethics and Safety	1
ATT	4840	Apparel and Textile Business Project	3
ENGR	1210	Engineering Graphics/CAD	2
IET	2227	Industrial Statistics	4
IET	1000	Orientation	1
IET	2305	Principles of Industrial Systems/Processes	4
IET	3322	Work Measurement and Ergonomics	4
IET	3339	Statistical Quality Control	3
IET	3424	Engineering Economy	3
IET	3433	Engineering Production and Cost Estimating II	3
IET	4405	Principles of Operation Research	3
IET	4422	Plant Layout/Materials Handling	4
IET	4449	Logistics Planning and Control	3
MGMT	4115	Human Resource Management	3
MGMT	4135	Project Management	3
MGMT	4151	Production and Operations Management I	3

Degree Program Total 128

Apparel and Textile Technology Courses

ATT 1000
Orientation
1-0-1

Provides students and students majoring in other degree programs an overall introduction to the apparel and textile industry, career opportunities in the field, 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.

ATT 1100
Fiber Formation
Prerequisite: CHEM 1211K
3-0-3

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 producing natural and man-made fibers are discussed.

ATT 1300
International Sourcing
3-0-3

Survey of international sourcing strategies including the decision making process, transportation, domestic production, Asia/Europe/Americas operations, foreign investment, foreign purchase, turn time, competitive advantage, communications, full package production capabilities, cultural priorities, political influence, international regulations and alliances, costs, quality, and technology. The principles of marketing and distribution to a global market are also discussed.

ATT 1400
Principles of Merchandising
3-0-3

Merchandising functions are discussed that include developing strategies to have the right merchandise, at the right price, at the right time, in the right amount and at the right locations to meet target customer needs. This course will explore apparel and consumer product strategies and methods used in planning inventory. Issues in wholesaling, retailing, advertising, and promotion will be included.

ATT 2100
Yarn Formation
Prerequisite: ATT 1100
3-0-3

Principles of yarn formation, modern processing technologies, and product structure-property relationship are examined. Yarn numbering and production calculations are included.

ATT 2301
Apparel Computer-Aided Technical Design I
2-4-4

The use of industry standard computer systems to determine the product information for apparel and consumer textile products including source materials, processing and assembly options, pattern development, sizing theory, garment fit and product development. Students will develop a complete set of flat patterns and alternate designs utilizing manual and computer software methods through applied project work. Principles of material utilization, pattern engineering, quality, and final design will be emphasized. Prerequisites: ENGR 1210

ATT 2500
Fabric Formation
3-0-3

Theory and practice of warping and slashing, elements of fabric design, fabric analysis, the physics of loom motions including shuttle and shuttle less looms and the elements of fabric geometry and fabric cover are included. The principles of circular, flat, warp, and double-knits are covered. Fabric design and properties are included. Prerequisite: ATT 1100

ATT 2600
Apparel Analysis and Product Development
2-2-3

Steps involved in apparel product development from concept through delivery will be covered from the perceptive of the manufacturer and the retailer. Product creation, design, marketing, merchandising, sourcing and distribution are discussed along with a study of stitch formation and seam application. Prerequisites: ATT 1400.

ATT 3100
Fashion Merchandising
3-0-3

Application of merchandising principles as they relate to buying, problem-solving, retail math and visual presentation using standard industry practices and software. Students will learn how style, color and presentation are major ingredients to successful merchandising producing customer excitement and demand. Prerequisite: ATT 1400.

ATT 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.

ATT 3602
Apparel Computer-Aided Technical Design II
2-4-4

Manual and computerized pattern grading theory are demonstrated and practiced by students utilizing industry standard digitizing, grading, and marker making systems. 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. Also presented are basic principles and computer methods of calculating, designing, and making pattern markers for apparel/textile products including yardage, cost estimation, and garment and fabric specifications through applied project work. 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. Prerequisites: ATT 2301, ATT 2500.

ATT 4700
Carpet Manufacturing I
Prerequisites: ATT 1100, ATT 2100, ATT 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.

ATT 3800
Fashion Forecasting, Data Analysis & Consumer Trends
3-0-3

Explore the techniques used in industry today including computer software programs to assist with consumer-driven fashion forecasting. Students will examine how to identify, track, and analyze trends in apparel and consumer products consumption. Both long-range and short-range forecasting strategies will be used for market analysis. Consumer trend research activities involve collection of information from multiple sources on a continual basis for the consumer style selection, color selection, and the fabric and trim market.

ATT 3830
2-0-2
Prerequisite(s): TET 1100 and TET 2500

A review of the principles of nonwoven processes. Review of the machinery requirements for the most commonly produced structures is followed by an analysis of the structure-property relationships of nonwoven fabrics.

ATT 4320
Textile Wet Processing
Prerequisites: ATT 2500, CHEM 2510, CHEM 1211K
2-023

The chemical, thermal, and mechanical processes used in the preparation, coloration, and finishing of textile structures.

ATT 4440
Testing and Quality Control
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. Prerequisites: ATT 2500.

ATT 4670
Apparel/Textile Business Practices
3-0-3

Evaluation of the comprehensive factors that determine sound business practices for planning, scheduling and production of apparel 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 software systems 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. Prerequisites: ATT 1300, ATT 2600, ATT 3602

ATT 4750
Advanced Design and Product Development
2-3-3

Students will examine the fashion industry design techniques through the use of technology in both 2D and 3D applications. The course surveys product development software and presentation methods used in industry today. Prerequisite: ATT 3602.

ATT 4810
Ethics and Safety
1-0-1

Students are provided information pertaining to ethics and safety regulations applicable to the textile industry. Prerequisite: Senior standing or consent of the department head.

ATT 4840
Textile/Apparel Business Project
1-4-3

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. Prerequisites: ATT 4670 or IET 4422, senior standing.

Southern Polytechnic State University Senior Administration

Dr. LISA A. ROSSBACHER – President

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M. A., Princeton University
M. A., State University of New York at Binghamton
B. S., Dickinson College

Mr. RON DEMPSEY – Executive Director of Advancement

Ph.D., Southern Baptist Theological Seminary
M.A., University of Louisville
M. Div., Southern Baptist Theological Seminary

Mr. WILLIAM GRUSZKA - Chief Information Officer

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B.I.E, Cleveland State University

Dr. RON R. KOGER - Vice President for Student and Enrollment Services

Ed.D., University of Kansas
M.Ed., University of Kansas
B.S.Ed., Pittsburg State University

Mr. PATRICK B. MCCORD - Vice President for Business and Finance

M. S., Georgia College
B. A., West Georgia College

Ms. MARY T. PHILLIPS - Executive Assistant to the President

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B. A., Howard College (Samford University)

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President Emeritus

Dr. Steve R. Cheshier

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- B.S., Aryamehr University of Technology, Iran
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- P.E. Ohio & Georgia

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Rainey, Kenneth, Professor Emeritus
Tumlin, John S., Professor Emeritus
Wess, Robert, Professor Emeritus

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Kropa, James C., Professor Emeritus
Stricklen, Simon A., Jr., Professor Emeritus
Stone, Ernest R., Associate Professor Emeritus
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Young, Donald F., Professor Emeritus
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Hamrick, Janes, Professor Emeritus
McClure, Hoyt L., Professor Emeritus
McGuire, Richard W., Professor Emeritus
McKee, James, Associate Professor Emeritus
McPherson, Jack, Professor Emeritus
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Pearce, Britt, Professor Emeritus
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Williams, Orren W., Professor Emeritus
Young, Ronald C., Professor Emeritus

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Institutions of the University System of Georgia

Research Universities

Georgia Institute of Technology	Atlanta
Georgia State University	Atlanta
Medical College of Georgia	August
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	August
Clayton 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	Kennesaw
North Georgia College & State University	Dahlonega
Savannah State University	Savannah
Southern Polytechnic State University	Marietta
University of West Georgia	Carrolton

State Colleges

Abraham Baldwin Agricultural College	Tifton
Dalton State College	Dalton
Gainesville State College	Gainesville
Georgia Gwinnett College	Lawrenceville
Gordon College	Barnesville
Macon State College	Macon
Middle Georgia College	Cochran

Two-Year Colleges

Atlanta Metropolitan College	Atlanta
Bainbridge College	Bainbridge
Coastal Georgia Community College	Brunswick
Darton College	Albany
East Georgia College	Swainsboro
Georgia Highlands College	Rome
Georgia Perimeter College	Decatur
South Georgia College	Douglas
Waycross College	Waycross