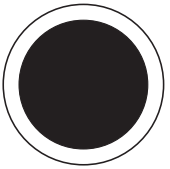

School of Extended Graduate Studies
Mission Statement

The ission of the chool of tended raduate tudies at Florida Institute of Technolog is to re are adult students here er the a e located for re arding and roducti e rofessional careers in a or en iron ent that is increasingl glo al in sco e dri en ra idl changing technolog and focused on ualit In ursuit of our ission e see to ro ide our students ith the finest ossi le graduate and rofessional de elo ent education using the ost a ro riate deli er technolog e offer an education that is reflecti e of current est ractices and that is taught instructors ho are full ualified acade icall and irtue of rofessional ractice

SEGS Statement of Values and Beliefs

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General Information

INTRODUCTION

This catalog represents a flexible program of the current curriculum, education plans, offerings and requirements that may be altered from time to time to carry out the purposes and objectives of the university. The provisions of the catalog do not constitute an offer for a contract that may be accepted by students through registration and enrollment in the university. The university reserves the right to change any provision, offering or requirement, including fees, at any time. It reserves the right to require a student to withdraw at any time (under appropriate procedures) if it is deemed in the best interest of the student and/or university. It also reserves the right to impose probation on any student whose conduct is unsatisfactory. Any admission on the basis of false statements or documents presented by the student is void when the fraud is discovered, and the student is not entitled to any credit for work that he or she may have done at the university. When a student is dismissed or suspended from the university for cause, there will be no refund of tuition and fees paid. If a dismissed student has paid only a part of his or her tuition and fees, the balance due the university will be collected.

Florida Tech's extended graduate studies programs and courses may be approved for payment of veterans' education benefits subject to individual state approval authority. Independent study, audit and continuing education courses not taken for academic credit are not approved for payment of veterans' education benefits.

There will be no refund of tuition, fees, charges or any other payments made to the university in the event the operation of the university is suspended at any time as a result of any act of God, strike, riot, disruption or for any other reasons beyond the control of the university.

Enrollments may be restricted at some sites.

Florida Institute of Technology does not discriminate on the basis of race, color, sex, disability, age, national or ethnic origin in admission of students, administration of its educational policies, scholarship and loan programs, employment policies and athletic or other university-sponsored programs or activities.

Address all inquiries to the director, graduate studies, of the Florida Tech site concerned.

THE UNIVERSITY

Florida Institute of Technology is an accredited, coeducational, independently controlled and supported university. It is committed to the pursuit of excellence in teaching and research in the sciences, engineering, technology, management and related disciplines, as well as providing the challenges that motivate students to reach their full academic and professional potential. Today, over 4,200 students are enrolled, with more than 2,800 students at the Melbourne campus and about 1,400 at Florida Tech's off-campus graduate centers. All of the off-campus students and about 750 on-campus students are enrolled in

graduate programs. Florida Tech offers more than 140 different degree programs in science and engineering, aviation, business, humanities, communications and psychology. Doctoral degrees are offered in 20 disciplines, while master's degrees are offered in more than 60 areas of study.

Because of the moderate size of the student body and the university's dedicated faculty and staff, a student at Florida Tech is recognized as an individual. Acting as individuals or as members of student organizations, students are encouraged to express their opinions on ways in which academic programs and student life might be made better for all. An active student government and student court play a meaningful part in matters affecting student life.

Many students enrolled in graduate school take part in sponsored research programs and make significant contributions to project results. Florida Tech houses a number of research institutes and centers that, in collaboration with academic departments, aid in the students' training.

The university is organized into six academic units: the College of Engineering, College of Science and Liberal Arts, School of Aeronautics, School of Management, School of Psychology and School of Extended Graduate Studies.

The **College of Engineering** includes seven departments: chemical engineering, civil engineering, computer sciences, electrical and computer engineering, engineering systems, mechanical and aerospace engineering, and marine and environmental systems. Programs offered in addition to those included in the department names are biological oceanography, chemical oceanography, coastal zone management, computer information systems, engineering management, environmental resource management, environmental science, geological oceanography, marine environmental science, meteorology, ocean engineering, physical oceanography, software engineering and systems engineering.

The **College of Science and Liberal Arts** is composed of the departments of biological sciences, chemistry, mathematical sciences, physics and space sciences, science education (including computer, environmental and mathematics education), and humanities and communication. Bachelor's degrees are offered in all of these areas and in biochemistry, interdisciplinary science and military science. Master's degrees are offered in applied mathematics, biological sciences, chemistry, computer education, environmental education, mathematics education, operations research, physics, science education, space sciences, teaching and technical and professional communication. The Specialist in Education degree is offered by the science and mathematics education department. Doctoral degrees are offered in applied mathematics, biological sciences, chemistry, mathematics education, operations research, physics, science education and space sciences. In addition to these degree programs, the college also includes the Division of Languages and Linguistics within the humanities department, and the military science program (Army ROTC) through interdisciplinary science.

The university offers four-year and two-year Army ROTC programs to interested, qualified students. Students may qualify for a reserve commission in the U.S. Army through normal completion of both the college basic and advanced cadet programs or may enter directly into the advanced program after completing their basic program requirements before entering the university.

The **School of Aeronautics** offers bachelor's degrees in aeronautical science, aviation management, aviation meteorology (with flight options available in each program) and aviation computer science, and master's degrees in airport development and management, applied aviation safety and aviation human factors. The school consists of two divisions—aviation studies, which is responsible for all academic instruction and student advising; and flight training, which conducts the flight operations courses. Classroom instruction in pilot training is conducted on campus, while all flight training is conducted under the supervision of the flight training department in university-owned facilities located at the Melbourne International Airport.

The **School of Management** offers both bachelor's and master's degrees in business administration, and bachelor's degrees in accounting, business and environmental studies, and management information systems. An accounting track in the M.B.A. program is offered for individuals who have completed a four-year degree in accounting and require additional credits to be able to qualify for the CPA examination in Florida, or to receive reciprocal licensure in Florida from another state.

School of Management students are prepared to compete in a global, technologically-driven business environment by integrating personalized and applied business instruction into a focused, high-quality academic learning experience.

The **School of Psychology** offers bachelor's degrees in psychology and forensic psychology, master's degrees in applied behavioral analysis and industrial/organizational psychology, and doctoral degrees in clinical psychology and industrial/organizational psychology.

The **School of Extended Graduate Studies** began in August 1972 as "Off-Campus Programs" when 42 students enrolled in a master's degree program in electrical engineering at the Naval Air Test Center, Patuxent River, Maryland. From that modest beginning, the graduate programs have grown to more than 1,425 students per year enrolled in 30 degree programs. Extended graduate studies programs that benefit employees of industry were added in 1976 when in-plant courses started with several firms and the municipal government in St. Petersburg, Florida, and with Martin Marietta Aerospace in Orlando, Florida.

Florida Tech's extended graduate studies programs are conducted in a very traditional manner with admission and graduation standards the same as those required on campus. Each graduate center is staffed with at least one full-time terminally degreed faculty member. Most courses are taught by instructors possessing terminal degrees. Curricula and course content are tailored to meet the needs of the students and their employers, while maintaining the highest possible academic quality and integrity. Class times and locations are selected for the convenience of the students. The conduct of administration is made as effective and efficient as possible by on-site staff and the School of Extended Graduate Studies in Melbourne, which was established for that sole purpose. Since the 1972 beginning, nearly 15,000 Florida Tech master's degrees have been conferred on off-campus candidates representing the military services, federal and local government employees and a wide variety of businesses and industries.

Degree programs available in **Distance Learning** can be found on our Web site at www.segs.fit.edu.

HISTORY

Founded in 1958 as Brevard Engineering Institute by Dr. Jerome P. Keuper, Florida Tech initially offered continuing education opportunities to scientists, engineers and technicians working at what is now NASA's John F. Kennedy Space Center. The new school grew quickly, in many ways paralleling the rapid development of space technology that

FINANCIAL SUPPORT

The university is supported by tuition and fees, research grants and contracts, and assistance from foundations, industry and the local community. Careful attention to sound business policies has placed the institution on a sound financial basis year after year.

TAX EXEMPTION

Florida Tech was ruled tax-exempt under Section 501(c)(3) of the Internal Revenue Code of the U.S. Treasury Department in January 1960. The university was classified in October 1970 as an organization that is not a private foundation as defined in Section 509(a) of the IRC. Gifts to the university are thus tax deductible.

RELEASE OF STUDENT INFORMATION

The Federal Right to Privacy Act of 1974 (FERPA) as Amended established a set of regulations governing access to and the release of personal and academic information contained in student education records. FERPA applies to the education records of persons who are or have been in attendance in postsecondary institutions, including students in cooperative or correspondence study programs. FERPA does not apply to records of applicants for admission who have been denied acceptance or, if accepted, do not attend an institution.

Education records are all records that contain information directly related to a student and are maintained by an educational agency or institution, or a party acting for the institution. Exceptions to education records include Sole Possession Records, Law Enforcement Unit Records, Employment Records, Health Records and Alumni Records. Rights under FERPA are not given to students enrolled in one component of an institution who seek to be admitted in another component of the institution.

FERPA gives students who have reached the age of 18 or who attend a postsecondary institution the following rights:

1. The right to inspect their education records within 45 days of the day the university receives a request for access. Student should submit to the Registrar, dean, head of the academic unit or other appropriate officials, written requests that identify the record(s) they wish to inspect. The university official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the university official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be made.
2. The right to request amendment of the student's education records the student believes are inaccurate or misleading. A student should write the university official responsible for the record, clearly identify the part of the record they want changed and why it is felt to be inaccurate or misleading.

   FERPA was not intended to provide a process to be used to question substantive judgments that are correctly recorded. The rights of challenge are not intended to allow students to contest, for example, a grade in a course because they felt a higher grade should have been assigned.

If the university decides not to amend the record as requested by the student, the university will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

3. The right to consent to disclosure of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosure without consent. One exception that permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the university has contracted (such as an attorney, auditor or collection agent); to officials of another school upon request, in which a student seeks or intends to enroll; a person serving on the board of trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting a school official in performing his or her tasks. A school official has a legitimate educational interest in the official needs to review an educa-

4. The right to file a complaint with the U.S. Department of Education concerning alleged failures by Florida Tech to comply with the requirements of FERPA. The name and address of the office that administers FERPA is

   Family Compliance Office
   U.S. Department of Education
   400 Maryland Ave., SW
   Washington, DC 20202-4605

The Solomon Amendment established guidelines for the release of directory information to the United States military for recruiting purposes. This Congressional act allows release of the following directory information without student consent to military recruiters for present and previously enrolled students at least 17 years of age: student name, address, date and place of birth, telephone number, level of education, major field(s) of study, degrees received and the educational institution in which the student was most recently enrolled.

STUDENT RIGHT TO KNOW

Florida Tech is in compliance with both the Student Right to Know Act of 1990 and the Campus Awareness and Campus Security Act of 1990.

Data in compliance with the student right to know act can be found in the university's *tudent and oo* The office of campus security keeps statistics on compliance with the campus awareness and campus security act. These statistics can be found on the university Web site, and are published and distributed to the university community on an annual basis. They are also available upon request to other interested parties.

PART-TIME STUDENTS

The normal course load for a part-time student is two courses per semester, each requiring one class attendance each week. This allows completion of a degree program in less than two years; less if transfer credits are accepted. Although a degree program

Transcripts from foreign universities must be accompanied by a certified English translation.

REAPPLICATION

Admission to the Graduate School is valid for two years from the semester of acceptance or from the last semester the student is enrolled in graduate study. Individuals wishing to begin or resume graduate work after a two-year lapse are required to reapply for admission. Individuals who leave Florida Tech and attend another university must reapply for admission and submit grade transcripts regardless of the length of time since last attending Florida Tech (See "Readmission Policy").

READMISSION POLICY

A student who has been away from the university for four or more consecutive semesters (excluding summer terms) or who has attended another institution during an absence from the university must apply for readmission. If readmission is approved, degree requirements for the peer group at the time of readmission must be met.

A student is not considered to be absent from the university during a period of study at another institution if a Request to Study at Another Institution form was submitted and approved prior to enrollment for the other institution's courses. While still currently enrolled, a student may also request a leave of absence from the associate provost. If the request is approved, the student can resume full-time study at Florida Tech under the previous program without applying for readmission, but may be required to meet the graduation requirements established for the new peer group.

A student who has been away for less than four semesters and who has not attended any other college or university may register for class without filing an application for readmission.

REGISTRATION PRIOR TO ADMISSION

Under certain circumstances, applicants to graduate programs can avoid delaying their education by registering for courses, for one semester only, while their applications are being processed, provided they are citizens or permanent residents of the United States.

Students who register prior to admission are not eligible to receive federal student financial aid until they are admitted to the university. Such registration requires a preliminary review of written documentation from the degree-granting institution (not necessarily official) showing previous academic courses taken, grades received and degrees awarded. The review should be carried out by the academic unit head or his or her designee. Permission to register pending formal acceptance requires a decision that there is a high probability of eventual acceptance into the program applied for and that registration prior to acceptance is in the best interest of both the academic unit and the student.

In the event that applicants are denied admission while enrolled in graduate courses, they will be given the option of either withdrawing with full tuition refund or completing the courses underway. If the applicant completes one or more graduate courses prior to being denied admission or completes a course for any other reason, he or she will not be given the option of withdrawing or receiving a tuition refund after completing the course.

Any exceptions to this policy require the written approval of the dean, School of Extended Graduate Studies.

EVALUATION

The applicant will be notified of the decision regarding his or her admission only after the officially certified transcripts and application for admission have been received and reviewed. Evaluation of the applicant's record is made by appropriate faculty at the main campus. In the case of a Special Student, defined below, the evaluation will be made by the dean. Admission requires approval of the academic unit head and the dean. In cases where the student has acceptable undergraduate achievement, but has course deficiencies, the cognizant academic unit will specify those Florida Tech courses that, if taken, will remove the deficiencies. Students who have more than 18 semester hours of deficiencies will not be admitted to graduate studies but may remove the deficiencies while enrolled as a special undergraduate student.

The GMAT is required for admission to the Professional M.B.A and M.B.A. In all other programs, the GMAT, GRE General Test and/or GRE Subject Tests, as well as letters of reference, may be required for admission in the case of any students whose previous academic achievement is deemed to be marginal. Official test scores must not be over five years old. Test results may take up to six weeks to be reported by the educational testing service.

INTERNATIONAL APPLICANTS

International applicants will not be admitted to a Florida Tech off-campus program as full-time students. Immigration forms (I-20) will not be issued by Florida Tech to off-campus students.

Transcripts from foreign universities must be accompanied by a certified English translation.

The Graduate Management Admissions Test (GMAT) is required of any applicant relying on a degree from a foreign (non-U.S.) university for admission to a School of Management degree program. Test scores must not be more than five years old.

Any student whose native language is not English will be required to submit TOEFL scores between 450–547. An exception to this rule is made for the student who has earned a bachelor's or master's degree from an American university in which English is the principal language of instruction.

International applicants must be admitted to the Graduate School before commencing classes.

CLASSIFICATION OF GRADUATE STUDENTS

Assignment to one of the following classifications will be made at the time of admission:

egular tudent—A student whose undergraduate grade point average is 3.0 or greater out of a possible 4.0 and who meets all other criteria for admission to a particular program is classified as a regular student.

rovisional tudent—A student whose undergraduate grade point average is less than 3.0 out of a possible 4.0 or equivalent, or whose academic unit identifies course deficiencies that are considered excessive, is classified as a provisional student. After completing nine credit hours, a provisional student with a grade point average of 3.0 or

greater will be reclassified as a regular graduate student. A provisional student whose grade point average is less than 3.0 will be placed on academic probation. A grade of D or F in any academic course taken while in provisional status results in dismissal. Provisional students cannot be admitted to doctoral programs.

ecial tudent—Special student classifications exist at both the undergraduate and graduate levels and are used for students who, for various reasons, are not enrolled in degree-seeking programs. Specific instances include:

1. a student taking course work for credit to apply at another institution;
2. a student taking courses to fill specific professional or vocational needs; or
3. a prospective graduate student with generally acceptable undergraduate achievements but with subject matter deficiencies (usually as a result of changing fields) that, in the judgment of the academic unit, preclude immediate acceptance into the degree program.

In the last mentioned case, the student will normally have the option of pursuing an undergraduate degree in the desired discipline or making up the deficiencies while enrolled as a special student. The student will then be considered for admission to the appropriate graduate degree program once sufficient additional work has been done to form an adequate basis for a decision by the academic unit.

The customary classification of special students will be as undergraduate students, regardless of the existence of previous bachelor's degrees. A student may, however, be classified as a special graduate student. In such a case, designation and continuation of graduate student status will be at the discretion of the cognizant academic unit, or the director of graduate programs in the case of students who are not seeking eventual admission to a graduate degree program.

A student who has been dismissed from a graduate degree program may enroll as a continuing education student to take graduate courses for CEUs subject to the same requirements for approval as any other continuing education student. A change of major from the former degree program to "0100" continuing education is necessary prior to any further enrollment. Under no circumstances will a dismissed student be allowed to take courses for graduate credit while enrolled as a continuing education student.

ADMISSION TO DEGREE PROGRAMS

A continuing education student may seek admission to a degree program through the normal admission process. If a continuing education student subsequently decides to pursue either an undergraduate or graduate degree at Florida Tech and is accepted into the degree program, a maximum of 12 semester credit hours earned as a CE student may be applied toward the degree, provided the course work is academically appropriate.

GRADUATE STUDY AT OTHER INSTITUTIONS

A currently enrolled student may take a limited number of courses at other institutions for transfer to a Florida Tech graduate degree program. The restrictions on graduate transfer credit apply. Prior approval is mandatory. The student must complete and submit the designated form with all required signatures and a written justification. A copy of the other institution's published course description(s) must be attached. The student must arrange for an official transcript to be sent by the other institution to the Florida Tech registrar's office.

AUDITING A COURSE

A student may audit a course with the permission of the adviser and payment of an audit fee. An auditor does not receive a grade; an AU is recorded on the transcript in place of the grade if the auditor has, in general, maintained a satisfactory course attendance (usually 75 percent class attendance) and completed the appropriate assignments. If the student does not meet requirements, a final grade of F may be awarded. No changes in registration from credit to audit or from audit to credit will be permitted after the first week of classes.

CORRESPONDENCE COURSES

The university does not offer courses by correspondence, nor does the university grant credit for courses completed by correspondence.

LIBRARY INFORMATION NETWORK (LINK)

To access Florida Tech's Library Information Network (LINK) and its many valuable resources and features, go to the Florida Tech home page (www.fit.edu) "Library" option or directly to www.lib.fit.edu. Some databases and services will require the remote user to input an identification (ID) number and an Evans Library four-digit personal identification number (PIN).

Tuition and Fees Payment Policy

It is the policy of Florida Tech that all expenses, including tuition and fees, are due and are to be paid by each off-campus student at the time of registration unless specifically exempted. Students may be registered and attend classes without payment at the time of registration, if:

Full-time .....9+ hours
3/4-time .....6, 7 or 8
1/2-time 5
More than 1/4 time, less than 1/2 time 3, 4
1/4 or less 1, 2

Students receiving benefits are required to make satisfactory progress in their degree programs. Failure of a graduate student to maintain the minimum cumulative grade point average specified will result in termination of veterans' education benefits.

Semester Hours Completed	**Minimum Cumulative GPA**
9–17	2.50
18–23	2.70
24–32	2.90
33 or more	3.00

FEDERAL AND STATE FINANCIAL ASSISTANCE

As a general rule, a graduate student must be enrolled half time (at least five semester hours per term) as a regular student in a degree program and must be a U.S. citizen or an eligible noncitizen to qualify for federal and/or state financial aid.

The graduate student must also complete a Free Application for Federal Student Aid (FAFSA). Financial aid forms are available through the Florida Tech Graduate Centers.

Although applications are accepted throughout the year, a FAFSA must be submitted for the federal process of need analysis by February 1 to ensure processing before the March 20 priority deadline.

Students must reapply each year and maintain satisfactory academic progress as defined by the Office of Student Financial Assistance to continue receiving federal assistance. The Federal Stafford Student Loan program is available to all graduate students who apply for federal assistance and who maintain at least half time (five credit hours) enrollment in graduate-level courses. Stafford loans are either subsidized or unsubsidized. A subsidized loan is awarded on the basis of financial need. The federal government pays the interest on a subsidized Stafford loan until repayment begins and during authorized deferment periods. A student may borrow up to $18,500 each year in Stafford loans. At least $10,000 of this amount must be in an unsubsidized Stafford loan. Cumulatively, a graduate student may borrow up to $138,500 in Stafford loans with no more than $65,000 in subsidized Stafford loans. The graduate debt limits include any Stafford loans received for undergraduate study.

Academic Policies

GENERAL ACADEMIC POLICIES

Academic policies are publi0 each yeTwdizeA(eder)-ory.egular1.i studs

Semester Hours Completed	Minimum GPA
9–14	2.60
15–17	2.80
18 or more	3.00

Students who have transferred credits from another institution will be permitted to complete nine semester hours of graduate work at Florida Tech before evaluation of the GPA. After completing nine semester hours at Florida Tech, the student must meet the above standards for total semester hours completed (Florida Tech credits plus transfer credits) by using Florida Tech's GPA.

A graduate student with fewer than nine semester hours of graduate courses, but nine or more credit hours of undergraduate courses taken while enrolled as a graduate student at Florida Tech, must maintain a 3.0 average in these undergraduate courses. Failure to maintain this average will result in probation. Failure to meet probation terms will result in academic dismissal. Upon completing nine credit hours of graduate courses, the graduate GPA will take precedence in probation and dismissal evaluations.

In addition, the following conditions will result in the academic dismissal of a student:

1. Two or more grades of D or F in any courses taken as a graduate student.
2. Judgment by the Graduate Council that the student is not making satisfactory academic progress, or the academic efforts of other students are hampered by the student's presence.

In all cases of academic probation and dismissal, the student will be so notified by the Graduate Program office. The academic dismissal can be waived for educationally sound reasons. A letter of appeal requesting reinstatement should be submitted to the Graduate Program office. The student will be allowed to continue attending classes pending Graduate Council action on his or her appeal. If the appeal is denied, or if no appeal is submitted within the time period specified in the dismissal letter, the student's registration will be canceled and further class attendance will not be permitted.

DISMISSAL FOR MISCONDUCT

Student conduct that violates the legal or ethical standards of the university may result in mandatory withdrawal from all classes and denial of permission to register in future terms for either a definite or indefinite period of time. Examples of misconduct that could result in these actions include cheating, plagiarism, knowingly furnishing false information to the university, or forging, altering or misusing university documents or academic credentials.

INCOMPLETE WORK

An I is given when a course cannot be completed because of circumstances beyond the student's control. The I indicates that course work is qualitatively satisfactory and there is reasonable expectancy that completion of the remaining work would result in a passing grade. The instructor must provide a statement of the work to be completed to the head of the academic unit. The student must complete the work at the earliest possible time but prior to the beginning of the seventh week of the following semester, unless an earlier deadline is established at the time the I is recorded and the student is notified of this fact. A waiver of the six-week limitation requires special written permission of the cognizant dean. The I will automatically become an F in the seventh week unless an approved waiver has been filed with the Office of the Registrar.

DROP/WITHDRAWAL POLICY

To add or drop a course, or to withdraw from the university, a student must complete a Change in Registration/Status form. Students withdrawing from the university are asked to complete an exit interview in the student's graduate center.

Failure to attend classes or verbal notification to instructors does not constitute an official drop or withdrawal. Students who drop or withdraw without filing the proper form will receive a failing grade of F. When a student drops a course on or before the last day to do so, as shown in the "Academic Calendar" for their graduate center, the course will not appear on the permanent academic record. After this date, a W will appear on the permanent record for each dropped course. The W is not punitive and is not used in the computation of grade point averages. The last day to drop a course without receiving a failing grade is published in the "Academic Calendar" for each center.

MASTER'S DEGREE REQUIREMENTS

PROGRAM PLAN

Each master's-level graduate student is required to have an approved program plan on file no later than one month prior to the time that nine semester hours of graduate courses have been completed.

Only one program plan can be in effect for a student at any given time.

Because of the importance of the program plan in establishing a new program GPA following a change of major, no request to change majors will be processed unless accompanied by an approved new program plan. This requirement applies whether a degree was earned in the first major or not. An exception is made in the case of a change of major prior to completion of any graduate courses at Florida Tech.

CHANGE OF PROGRAM PLAN

A request for a change of a program plan must be submitted through the director of graduate studies, for approval by the academic unit head or his/her designated representative. Students should not deviate from an approved program plan prior to obtaining approval of the change.

CHANGE OF MAJOR

A student wishing to change his or her major must complete a Request for Change of Major form and submit it to the Florida Tech Graduate Center. A program plan for his or her new major must accompany the request for change.

The academic unit responsible for the new program has the prerogative to accept or reject the student, as well as to designate what courses are germane to the new program. All courses that are determined by the academic unit to be applicable in the new program must be included in the program plan. Because the student is changing programs, the number of courses in the plan may be more than the minimum required for graduation. The student will not be considered as enrolled in the new program until all actions specified above have been completed.

DIRECTED STUDY

Directed study is a means of allowing a student to register for a course during a semester when it is not included in the *chedule of lasses* To enroll in a directed-study course, a Request for Directed Study Course form should be initiated and approved according to form instructions. Approval is at the discretion of the academic unit head or program chair responsible for the course, and normally requires evidence of a compelling need by the student. The student should submit the approval form to the graduate center during early registration. The tuition rate for a directed-study course is the standard undergraduate or graduate rate, plus an additional directed-study fee (See this section for information about tuition).

TRANSFER CREDIT

If the courses constitute a logical part of the student's program, up to a maximum of 12 semester hours of transfer credit from regionally accredited institutions may be transferred to Florida Tech (for one master's degree only), under the following conditions.

1. These courses must be eligible for graduate credit at the institution where they were taken, and not previously applied to any undergraduate degree.

2. They must have been graded courses, and grades of at least B or equivalent must have been earned in each course.
3. They must have been taken not more than six years prior to the student's first enrollment at Florida Tech.
4. All course work (including transfer credit) must be completed within seven years of elapsed time.
5. Subject to approval of academic unit head, and the director of graduate programs.

Courses that have been applied toward a graduate degree at another institution may also be considered for transfer credit if they satisfy these criteria. Transfer credit from foreign universities will be considered on a case-by-case basis, subject to the same overall limitations. Transfer credits are not included in the computation of grade point average.

Some courses presented by certain military schools, plus the regular courses of the U.S. Army Command and General Staff College, Ft. Leavenworth, Kansas, have been evaluated by Florida Tech and specific courses found acceptable for transfer to designated degree programs without charge to the student. Up to a maximum of 12 such credit hours may be transferred provided at least a B or its equivalent was earned in each course, and provided the same time limit as for university courses is met. Information concerning the specific courses found acceptable and the Florida Tech equivalents is available from the School of Extended Graduate Studies in Melbourne.

The combined total credit hours transferable from other university courses and from designated military schools may not exceed 12 credit hours.

No transfer credit will be granted for correspondence courses or from college/universities that are not regionally accredited if in the U.S. Military courses must have been taken at an approved school. Off-site military courses do not normally qualify for transfer credit.

Requests for transfer of credits must be filled out on the forms provided and submitted to the director of graduate studies. Transfer requests will not be evaluated until an officially certified transcript is received and until the applicant has been admitted to the Florida Tech Graduate School.

Approval of a request for transfer credits does not indicate acceptance of those credits in a degree program. That action is taken only through approval of a program plan.

Where a joint- or dual-degree program exists within another institution, up to one-half of the total credits required in the program may be transferred from the partner institution, provided the courses at that institution are periodically reviewed and monitored by the dean of the appropriate college or school, or other graduate council representative. In each individual joint- or dual-degree program, the total transfer credits will be established prior to announcing the program or admitting students, and may be smaller than half the required credits if circumstances warrant. It is also noted that transfer credits from other institutions are not permitted in the case of a joint- or dual-degree program.

Permission to take a course at another institution for transfer to Florida Tech subsequent to being admitted to the Florida Tech Graduate School must be obtained from the cognizant academic unit head prior to taking the course.

FINAL PROGRAM EXAMINATIONS

A final program examination is required for master's degree programs with the exception of those in the School of Management and the School of Extended Graduate Studies for which there is no on-campus counterpart.

Procedure for the development and grading of operations research (OR) comprehensive examinations for off-campus students at Aberdeen, Ft. Lee, and the VGC:

1. The curriculum manager of the off-campus OR program will design the comprehensive examination (i.e., determine areas to be tested, number of questions and/or problems, weighting, time limits and other test parameters). Faculty members from the off-campus sites (Aberdeen, Ft. Lee, and the VGC) may submit questions or problems with associated solutions to the curriculum manager of the off-campus OR program for inclusion in the examination. The department head for the operations research program from the main campus will have the final oversight authority for examination design.
2. Comprehensive examinations may be administered at the off-campus sites and graded by faculty members at the administering site. However, no grades will be final until both the curriculum manager of the off-campus OR program and department head for the operations research program from the main campus review the grading.
3. Off-campus sites shall notify the curriculum manager of the off-campus OR program upon learning of an eligible student's intent to sit for the comprehensive examination. Notification shall include:
   - Student name and contact information
   - Anticipated examination date
   - Where examination will be administered (off-campus site)
   - Off-campus site point-of-contact

   Every effort should be made to have comprehensive examinations administered and graded no later than one month prior to the end of the intended graduation semester.
4. Completion of the examination report form will require these signatures:
   - *a or d.iser*—On this line, the name/signature of a ***full-time*** graduate faculty member who is in the student's program (i.e., operations research) will be entered. This must be the student's program chair or another full-time graduate faculty member of the student's academic unit designated by the student's program chair.
   - *utside e er*—On this line, the name/signature of a ***full-time*** graduate faculty member who is administratively different from the student's program will be entered. Typically, this will be someone at the off-campus site who meets the above stated criteria.
   - *ther e er*—On this line, the name/signature of other committee members who ***must*** be on the graduate faculty, but can be other than full time (adjunct, visiting, etc.). Typically, this will be the Curriculum Manager of the off-campus OR program.

ote Facult e ers are listed at fit edu cad e graduat fac enu ht l

By clicking on the SEGS entry, all individuals appointed in SEGS will be listed. However, if there is a date after the name, they are other than full time, and therefore can be on the committee but cannot be the designated "outside member."

5. Only students with an overall GPA of 3.0 at the beginning of the term during which the comprehensive examinations are administered are eligible to take the examination.

6. In the event of the student's failing part or parts of the comprehensive examination, the regulations as specified in the *, raduate, olic anual* section 1.6.5 will apply.

THESIS

Students in certain extended graduate programs are generally expected to undergo the required final program examinations. Permission to follow a thesis in lieu thereof must be requested in writing through the director of graduate studies/faculty adviser to the cognizant academic unit head. If granted, the thesis policies enunciated in the */ ni.er sit atalog* must be followed.

PETITION TO GRADUATE

All graduating students must file petitions for graduation no later than the dates shown

All waivers will be valid for a period of seven years. In no case will a time waiver request be honored if the original course grade was less that B.

Courses over the time limit for which the limit has not been waived will not be included in GPA calculations upon receipt of a written request that has been approved by the academic unit head.

SECOND (MULTIPLE) MASTER'S DEGREES

A student seeking a second master's degree from Florida Tech must enroll in the programs sequentially, not simultaneously. Following admission to the first program, the student may at any time thereafter apply for admission to an additional program. If accepted into the new program, actual enrollment in that program will take effect upon completion of the first master's degree.

With approval of the academic unit head, credit for non-thesis or non-degree projects used previously to meet requirements for a master's degree at Florida Tech may be used to meet up to one-half of the credits required for a subsequent master's degree. The academic unit head will decide, on a per-course basis, the applicability of each course to be transferred to the second program. The final program, including those courses transferred, must be approved by the academic unit head of the program in which the student wishes to enroll. However, at least one-half of the course work leading to any master's degree granted by Florida Tech must have been taken at Florida Tech, but never applied to any other degree.

The overall cumulative GPA carried on the transcripts will include all courses for all graduate degrees. A notation will be made of the program GPA compiled for each degree, which will include only courses that were applied to the respective degree.

Neither degree will be awarded unless both the program GPA compiled on the basis of only those courses applied to that degree, and the overall cumulative GPA are at least 3.0.

STUDENT–FACULTY COMPLAINT RESOLUTION

Purpose

1. To promote prompt resolution of perceived wrongs and/or injustices that may arise between students and faculty members.
2. To assure that the rights of privacy of all parties are maintained.
3. To develop a higher sense of community among all persons at Florida Tech's off-campus locations.

Complaint Resolution Process

1. Occasions may arise where a student feels that he/she has a legitimate basis for complaint. It is the policy of the university to promptly resolve these complaints. The normal process for resolution of complaints is as follows:
   a. When a student feels that he/she has a complaint, it should be taken by the student directly to the party(s) involved. Those involved should attempt to resolve the matter informally and without the need to establish a record.

b. If the student and the other party are unable to resolve the matter, or if for any reason the student does not feel at ease in going to the other party, he/she should contact the director of graduate studies at the site for assistance. Very often the director of graduate studies is able to achieve an equitable solution to most problems.

c. If the student would rather not discuss the matter with the director of graduate studies, he/she may contact, by telephone or letter, the dean of the School of Extended Graduate Studies at the main campus in Melbourne, Florida.

d. If for any reason the student chooses not to deal with the individuals listed above, he/she may present their complaint to the associate provost, Florida Tech, Melbourne, Florida.

2. To promote prompt and equitable resolution of student grievances, complaints should be made as soon after the incident as possible. Students may seek the help of any of the individuals listed above at any point in the grievance process that they choose. They may also withdraw the complaint at any time. EVERY EFFORT SHOULD BE MADE BY ALL PARTIES CONCERNED TO RESOLVE THE GRIEVANCE WITHIN 90 DAYS.

3. Complaints involving sex discrimination or equal opportunity may be resolved using the procedures outlined above. However, if the student is not at ease with these procedures, or feels these to be ineffective, he/she may seek the aid of the Title IX Coordinator (Mr. Gary Meiseles, Director of Human Resources) at the main campus of Florida Tech in Melbourne, Florida, telephone (321) 674-8100.

Definition of Title IX Coordinatorphone (321) 6-

SEGS Programs and Locations

NOTE: For DL = Distance Learning program information
visit our Web site www.segs.fit.edu

DEGREES OFFERED	LOCATIONS	
Legend: R = Resident Classes, On site DL = Distance Learning (Online) Classes NA = Not Available (this location) B = Bisk Education Inc.	Aberdeen Proving Ground, MD	Fort Lee, VA
PROFESSIONAL MASTER OF BUSINESS ADMINISTRATION (PMBA)	R-DL	DL
Acquisition and Contract Management	R-DL	DL
eBusiness	R-DL	DL
Human Resources Management	R-DL	DL
Information Systems	R-DL	DL
MASTER OF PUBLIC ADMINISTRATION (MPA)	DL	DL
MASTER OF SCIENCE (MS)		
ACQUISITION AND CONTRACT MANAGEMENT	R-DL	R-DL
AEROSPACE ENGINEERING	NA	NA
COMPUTER INFORMATION SYSTEMS	NA	NA
COMPUTER SCIENCE	NA	NA
ELECTRICAL ENGINEERING	NA	NA
ENGINEERING MANAGEMENT	R	NA
HUMAN RESOURCES MANAGEMENT	R-DL	DL
LOGISTICS MANAGEMENT	DL	R-DL
MANAGEMENT	R-DL	R-DL
Acquisition and Contract Management	R-DL	R-DL
eBusiness	R-DL	DL
Human Resources Management	DL	DL
Information Systems	R-DL	R-DL
Logistics Management	R-DL	R-DL
Transportation Management	DL	DL
MATERIEL ACQUISITION MANAGEMENT	DL	R-DL
MECHANICAL ENGINEERING	NA	NA
OPERATIONS RESEARCH	R-DL	R-DL
PROJECT MANAGEMENT	R-DL	DL
Information Systems	R-DL	DL
Operations Research	R-DL	DL
SOFTWARE ENGINEERING	NA	NA
SPACE SYSTEMS	NA	NA
SPACE SYSTEMS MANAGEMENT	NA	NA
SYSTEMS MANAGEMENT	R-DL	DL
Information Systems	R	NA
Operations Research	R-DL	DL

LOCATIONS							
Hampton Roads, Fort Eustis/ Norfolk, VA	National Capital Region, Alexandria, VA	Northeast/ NJ/PA	Orlando, FL	Patuxent River, MD	Redstone Arsenal, AL	Spaceport/ KSC/PAFB/ Melbourne, FL	Virtual Center
R-DL	R-DL	R-DL	R-DL	R-DL	R-DL	DL	DL
DL	R-DL	R-DL	R-DL	R-DL	R-DL	DL	DL
R-DL	R-DL	R-DL	R-DL	R-DL	R-DL	DL	DL
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NA	NA	NA	NA	R	NA	NA	NA
NA	NA	NA	R	R	R	R	NA
NA	NA	NA	R	R	NA	R	NA
NA	NA	NA	R	R	NA	NA	NA
NA	NA	R	R	R	R	NA	NA
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NA	NA	NA	NA	NA	NA	R	NA
NA	NA	NA	NA	NA	NA	R	NA
NA	NA	NA	NA	NA	NA	R	NA
R-DL	R-DL	R-DL	R-DL	DL	R-DL	DL	DL
R	R	R	R	NA	R	NA	B
DL	DL	R-DL	R-DL	DL	R-DL	DL	DL

ABERDEEN PROVING GROUND GRADUATE CENTER COMMUNICATION DIRECTORY

Personnel
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irector , raduate tudies

Ms. Patricia Callicutt
, ffice anager

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E-mail amccampb@fit.edu
E-mail callicut@fit.edu

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Mailing Address
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Bldg. 5442, Room 9
Aberdeen Proving Ground, MD
21005-5201

DEGREE PROGRAMS IN RESIDENCE

Additional Degree Programs Available Via Distance Learning

www.segs.fit.edu

Aberdeen Proving Ground Graduate Center

Florida Tech's Graduate Center in Harford County, Maryland, provides graduate students at APG and in the surrounding area opportunities for continuing their education to maintain their professional and technical competence, and to enhance their career development and progression. Florida Tech programs are available to all who meet admission requirements of the university. Classes meet one night per week for three hours beginning at 5 p.m.

The Aberdeen Graduate Center offers students the choice of 11 different management specialties. They range from an M.B.A. generalist to a master's-level specialist in contract management.

The center offers several support resources not usually available in off-campus programs. This includes a 16,000 volume, 300 periodical library, which has an active program of interlibrary loans with other libraries throughout the country via the Online Computer Library Center (OCLC). This system allows Florida Tech students quick access to the library holdings of the University of Maryland, Johns Hopkins University, University of Delaware, American University and George Washington University, as well as colleges and universities offering graduate degrees in other parts of the country. Each semester, the librarian places selected books on reserve on special shelves in support of Florida Tech courses offered that semester. Students also have access to the APG Education Center Computer Laboratory, and to microcomputer systems in the director, graduate studies' office. Classrooms are equipped with instructional audiovisual equipment. Also, the Aberdeen center is equipped with state-of-the-art telecommunications and data processing equipment, which allows for speedy registration, and improves communications between professor and student.

Several of the available programs and courses are particularly applicable to Department of Defense military and civilian personnel working at APG. For example, the Aberdeen Graduate Center offers systems management with a concentration in operations research for the employee desiring to enhance his/her applied mathematics abilities, and offers a Master of Science in Contract Management for the career-oriented acquisition specialist.

Credit for specific DoD courses (up to a maximum of 12 semester hours) can be applied toward applicable Florida Tech degrees. For example, students attending the Ordnance Officer Advanced Course can earn up to six semester hours toward a master's degree in management after successfully completing OOAC. Also, students (again with prior Florida Tech approval) can attend a variety of DoD courses to earn up to 12 semester credit hours toward a master's degree with a contracts or logistics concentration. (Prior approval by the academic chair and the dean of the School of Extended Graduate Studies, in writing, is required before graduate credit can be granted.)

Florida Tech programs at Aberdeen are approved by the Maryland State Higher Education Commission, and may be additionally approved by Maryland State Approval Authority for payment of veterans' education benefits.

TUITION

Tuition costs for courses conducted by Florida Tech for School of Extended Graduate

FACULTY AT ABERDEEN PROVING GROUND GRADUATE CENTER

ATZINGER, E., Adjunct Instructor, Management. B.A., Franklin and Marshall College; M.A., Ph.D., Pennsylvania State University.

BODT, B.A., Assistant Professor, Management. B.S., University of Maryland at College Park; M.S., Ph.D., University of Delaware.

FERRITER, J.M., Adjunct Instructor, Management. B.S., University of Massachusetts, Amherst; M.S., John Hopkins University; D.Sc., George Washington University.

HOLTER, N.C., Adjunct Instructor, Accounting. B.S., M.S., University of Baltimore; Ph.D., George Washington University.

MARONICK, T.J., Adjunct Instructor, Management. B.A., St. Thomas Seminary; M.S., University of Denver; J.D., University of Baltimore; D.B.A., University of Kentucky.

MCCAMPBELL, A.S., Associate Professor, Management and Director, Graduate Studies. B.S., M.B.A., University of Baltimore; D.B.A., Nova University.

MIGGANS, N., Adjunct Instructor, Economics. B.S., Siena College; M.A., American University.

MOOZOUN, S., Adjunct Instructor, Management. B.S., M.S., Ph.D., West Virginia University.

THOMAS, F.S., Adjunct Instructor, Contract Management. B.S., Towson State University; M.S., Florida Institute of Technology.

Fort Lee Graduate Center

Problems related to World War II, and growth in the military establishment in response to the cold war caused the government to focus on the shortcomings of the military departments in wholesale logistics management. This problem was examined by the Hoover Commissions of the late 1940s and early 1950s, and by various congressional committees, including the House Committee on Government Organization in 1951 and 1952. These efforts culminated in the decision to establish the Army Supply Management Course.

The U.S. Army Logistics Management College (ALMC) was established in October 1954 as an activity with the single mission of conducting the two-month Army Supply Management Course at Fort Lee, Virginia. The college has since grown to an institution with multiple missions and 71 resident courses. In 1962, ALMC became a part of the U.S. Army Materiel Command (AMC), and its mission was broadened to include the development of mid- and top-level logistics managers in the AMC work force. On October 1, 1991, ALMC was placed under operational command of the Combined Arms Support Command and Fort Lee, Training and Doctrine Command (TRADOC).

Florida Tech conducts evening graduate-level courses in facilities of the U.S. Army Logistics Management College (ALMC), Fort Lee, Virginia. These programs are available to active-duty military personnel, spouses and/or dependants of active-duty military personnel and U.S. government civilian employees who meet admission requirements of the university. The course offerings listed in this catalog may be adjusted to provide maximum responsiveness to the needs of the participants.

ALMC/FLORIDA TECH PARTNERSHIP

Since 1973, ALMC and Florida Tech have worked cooperatively in offering graduate level degree programs. The following graduate degrees are available in residence at the Fort Lee Graduate Center:

- M.S. Acquisition and Contract Management
- M.S. Logistics Management
- M.S. Management
  - Acquisition and Contract Management Concentration
  - eBusiness Concentration
  - Information Systems Concentration
  - Logistics Management Concentration
- M.S. Materiel Acquisition Management
- M.S. Operations Research

All Florida Tech graduate degree programs require completion of 33 credit hours (excluding possible prerequisites). Requirements may be completely fulfilled

Many courses taught by the Army Logistics Management College (ALMC) and the Defense

graduate degree requirements in two years at the normal load of two courses per academic session. This time may be reduced if transfer credits are accepted from other civilian institutions or designated military schools. Part-time students must complete all degree requirements within a period not to exceed seven years.

VETERANS BENEFITS

Florida Tech degree programs are approved for the payment of veterans' education benefits.

TUITION

Tuition costs for courses conducted by Florida Tech School of Extended Graduate Studies will normally not exceed tuition charges at the Melbourne campus, and may be less. The following charges are effective at Fort Lee Graduate Center with summer semester 2004.

- Graduate course, Fort Lee student: $395 per semester credit hour, $1,185 per 3 credit course
- Distance Learning, online course: $395 per semester credit hour, $1,185 per 3-credit course
- Graduate directed study, Fort Lee student: $495 per semester credit hour, $1,485 per 3 credit course
- Graduate directed study, Melbourne student: $880 per semester credit hour, $2,640 per 3 credit course
- Graduate course except Psychology Doctoral Program, Melbourne student: $780 per semester credit hour, $2,340 per 3 semester credit hours
- Audited course: $225 per semester credit hour
- Continuing Education Unit (noncredit): $225 per CEU

ACADEMIC CALENDAR

Fall 2004 Semester (Aug. 23–Dec. 10)

ug Registration Begins
ug FALL SEMESTER BEGINS
ug Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2005
ug Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
et Holiday *a or a*
ct Holiday *olu us a*
ct Last day to withdraw from a class with a final grade of W
o Holiday *eterans a*
o Holiday *Than sgiving*
ec Last day of classes
ec Final Exams
ec Graduation Ceremony

Spring 2005 Semester (Jan. 10–April 22)

ec Registration begins
an SPRING SEMESTER BEGINS
an Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Summer Semester 2005
an Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
an Holiday *artin uther ing a*
Fe Holiday *residents a*
arch Last day to withdraw from a class with a final grade of W
ril Last day of classes
ril Final Exams

Summer 2005 Semester (May 2–Aug. 12)

ril Registration (Summer) begins
a SUMMER SEMESTER BEGINS
a Last day to file a Petition to Graduate for students who plan to complete

Personnel

Dr. Catherine A. Elder
irector , raduate tudies

Penny Vassar
esident irector a ton oads

Regina Bynum
esident d inistrator

Rebecca Buckland
taff ssistant

TBD
d inistrati e ecretar , orfol

Trudi Schwarz-Shattuck
d inistrati e ecretar Fort ustis

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(757) 887-5648 Telefax

Norfolk Naval Station
(757) 440-9005
(757) 440-9309 Telefax

Office Hours

Fort Eustis
Monday–Thursday 8:00 a.m.–5:00 p.m
Friday 8:00 a.m.–4 p.m.

Norfolk Naval Station
Monday–Friday 8:00 a.m.–4:00 p.m.
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Location

Fort Eustis

- Graduate course, Hampton Roads student: $395 per semester credit hour/$1,185 per 3 semester credit hours
- Distance Learning, online course: $395 per credit, $1,185 per 3-credit course
- Graduate directed study, Hampton Roads student: $495 per semester credit hour/$1,485 per 3 semester credit hours
- Graduate directed study, Melbourne student: $880 per semester credit hour/$2,640 per 3 semester credit hours
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- Audited course: $225 per semester credit hour
- Continuing Education Unit (noncredit): $225 per CEU

ACADEMIC CALENDAR

Fall 2004 Semester (Aug. 30–Dec. 10)

ul Registration begins
ug FALL SEMESTER BEGINS
e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2005
e t Last day to register, add a class, drop a class with a full tuition refund or drop a class without receiving a grade of W
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an Graduation

Spring 2005 Semester (Jan. 10–April 22)

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an Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Summer Semester 2005
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ril Last day of classes
ril Final Exams
a Graduation

Summer 2005 Semester (May 2–Aug. 12)

arch Registration begins
a SUMMER SEMESTER BEGINS
a Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Fall Semester 2005
a Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
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une Last day to withdraw from a class with a final grade of W
ul Holiday *Inde endence a*
ug Last day of classes
ug Final Exams
e t Graduation

Fall 2005 Semester (Aug. 29–Dec. 9)

ul Registration begins
ug FALL SEMESTER BEGINS
e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2006
e t Last day to register, add a class, drop a class with a full tuition refund or drop a class without receiving a grade of W
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o Holiday *Than sgiving a*
ec Last day of classes
ec Final Exams
an Graduation

BAKER, S.H., Adjunct Instructor, Economics. B.S., Hampden–Sydney College; Ph.D., University of Virginia.

BERGERON, S., Adjunct Instructor, Management. B.A., University of Southern Mississippi; M.S., M.B.A., Florida Institute of Technology.

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COCCIO, K., Adjunct Instructor, Contract Management. B.A., Saint Leo College; M.S., Florida Institute of Technology.

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EUDY, E.F., Adjunct Instructor, Management. B.S., SUNY–Brockport; M.A., Webster University.

HOLLAND, S.D., Adjunct Instructor, Management. B.S., M.S., Virginia Polytechnic Institute and State University; Ph.D., North Carolina State University.

KEELEY, S., Adjunct Instructor, Management. B.A., Baker University; M.B.A., Texas Technology University; Ph.D., Oklahoma State University.

KNICKMEYER, J.W., Adjunct Instructor, Management. B.A., M.A., Ph.D., University of Oklahoma.

PARDUE, M.D., Adjunct Instructor, Management. B.S., M.S., Old Dominion University; Ph.D., George Mason University.

SMAIL, L.M., Assistant Professor, Management. B.A., J.D., Washington and Lee University; M.B.A., College of William and Mary.

SMITH, T.S., Adjunct Instructor, Management. B.S., Old Dominion University; M.B.A., Florida Institute of Technology.

SOLERA, C.L., Adjunct Instructor, Economics. Licensure, University of Costa Rica; Ph.D., Iowa State University.

NATIONAL CAPITAL REGION GRADUATE CENTER

Personnel

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irector , raduate tudies

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esident d inistrator

Dr. Kermit C. Zeig Jr
rofessor of anage ent

Dolores Heim
ste s d inistrator

Priscilla Weiner
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Patti Ann Gleichsner
enior d inistrati e ler

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(703) 751-1097

Office Hours

Monday–Friday 8:00 a.m.–5:00 p.m.

Mailing Address

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National Capital Region Graduate Center

Florida Tech conducts an evening graduate-level professional development program in the greater Washington, D.C., area. The program is available to all qualified applicants who meet the requirements of the university.

The program is administered by the National Capital Region (NCR) Graduate Center, which is centrally located in Alexandria, Virginia, and is comprised of an administrative suite and classrooms. The NCR graduate center's student body includes students from the entire metropolitan Washington, D.C., area.

Library support for the National Capital Region is provided by contract with George Mason University's Fenwick Library. Additional library support is available from the many fine federal and local libraries in the greater Washington, D.C., area.

In addition to the graduate degree programs identified in this catalog, the NCR graduate center also offers five-course graduate certificate programs in logistics and contract management. The certificate program is intended to satisfy the needs for professional development for those students who do not choose to pursue a complete degree program. All classes are taught by full-time or adjunct faculty of Florida Tech.

The NCR off-campus program provides the opportunity for interested individuals to continue their education to increase professional and technical competence, and thereby enhance career development and progression.

TUITION

Tuition costs for courses conducted by Florida Tech for School of Extended Graduate Studies students will normally not exceed tuition charges at the Melbourne campus and may be less. The following charges are effective at NCR Graduate Center with the summer semester 2004.

- Graduate course, NCR student: $395 per semester credit hour/$1,185 per 3 semester credit hours
- Distance Learning, online course: $395 per credit, $1,185 per 3-credit course
- Graduate directed study, NCR student: $495 per semester credit hour/$1,485 per 3 semester credit hours
- Graduate directed study, Melbourne student: $880 per semester credit hour/$2,640 per 3 semester credit hours
- Graduate course except Psychology Doctoral Program, Melbourne student: $780 per semester credit hour/$2,340 per 3 semester credit hours
- Audited course: $225 per semester credit hour
- Continuing Education Unit (noncredit): $225 per CEU

ACADEMIC CALENDAR

Fall 2004 Semester (Aug. 30–Dec. 10)

ul Registration begins
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e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2005
e t Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
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ct Holiday *olu us a*
ct Makeup class for Columbus Day
ct Last day to withdraw from a class with a final grade of W
o Holiday *eterans a*
o Holiday *Than sgiving a*
ec Last day of classes
ec Final Exams

Spring 2005 Semester (Jan. 10–April 22)

an Registration begins
an SPRING SEMESTER BEGINS
an Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Summer Semester 2005
an Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
an Holiday *artin uther ing a*
an Makeup class for holiday
Fe Holiday *residents a*
Fe Makeup class for holiday
arch Last day to withdraw from a class with a final grade of W
ril Last day of classes
ril Final Exams

Summer 2005 Semester (May 2–Aug. 12)

ril Registration begins
a SUMMER SEMESTER BEGINS
a Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Fall Semester 2005
a Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
a Holiday *e orial a*
une Makeup class for holiday
une Last day to withdraw from a class with a final grade of W
ul Holiday *Inde endence a*
ug Last day of classes
ug Final Exams

Fall 2005 Semester (Aug. 29–Dec. 9)

ul Registration begins
ug FALL SEMESTER BEGINS
e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2006
e t Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
e t Holiday *a or a*
ct Holiday *olu us a*
ct Makeup class for holiday
ct Last day to withdraw from a class with a final grade of W
o Holiday *eterans a*
o Holiday *Than sgiving a*
ec Last day of classes
ec Final Exams

NORTHEAST GRADUATE CENTER COMMUNICATION DIRECTORY

Contacts

Dover
(973) 724-3575
(973) 989-2477
(973) 989-1344 Fax

Lakehurst
(732) 657-5511
(732) 657-4477 Fax

Office Hours

Dover
Monday–Friday 8:00 a.m.–4:30 p.m.

Lakehurst
Monday–Friday 8:00 a.m.–4:30 p.m.

Mailing Address

Dover
Florida Tech Picatinny Graduate Center
Building 3409, Picatinny Arsenal
Dover, NJ 07806-5000

Lakehurst
Florida Tech Lakehurst Graduate Center
Hangar 1, Room 308
NAWC–Lakehurst, NJ 08733-9998

DEGREE PROGRAMS IN RESIDENCE

Note: Not all degree programs are available at all teaching locations

Additional Degree Programs Available Via Distance Learning: www.segs.fit.edu

Northeast Graduate Center

Picatinny Arsenal is located in New Jersey's Morris County approximately 35 miles

ARDEC TECHNICAL LIBRARY

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Florida Tech students are encouraged to use the excellent library facilities at Picatinny. The collection includes about 53,400 volumes, more than 1,200 periodicals, 266,000 reports on microfiche and 259,000 hard-copy reports on an immense range of subjects involving research and development and other government reports. The services of the library include:

Documents (Room 1)

DREW UNIVERSITY LIBRARY

Through a Memorandum of Understanding, Florida Tech graduate students are authorized to use all services of the Drew University Library in Madison, New Jersey. To withdraw books from the library, a fee of $25 annually is required, and a Florida Tech student identification card must be presented.

Special borrower privileges extended to students are valid for one calendar year, at which time they may be renewed for another calendar year. There is a five-book limit. Students can obtain ID cards from Florida Tech's Resident Office.

NAVAL AIR WARFARE CENTER, LAKEHURST, NEW JERSEY

Florida Tech's Graduate Center in Ocean County, New Jersey (located at the Naval Air Warfare Center, Lakehurst, New Jersey) provides graduate students there and in the surrounding area opportunities for continuing their education to maintain their professional and technical competence, and to enhance their career development and progression. Florida Tech programs are available to all who meet admission requirements of the university. Classes are held on base and meet one night per week for three hours beginning at 5:00 p.m.

The Graduate Center in Ocean County offers several support resources not usually available in off-campus-type programs. This includes a 6,500 volume, 150 periodical library, which has an active program of interlibrary loans with other libraries throughout the country via the Online Computer Library Center (OCLC). This system allows Florida Tech students quick access to the holdings of local libraries as well as colleges and universities offering graduate degrees in other parts of the country. Each semester, the librarian places selected books on reserve on special shelves in support of Florida Tech courses offered that semester. Students also have access to microcomputer systems in the director of graduate studies' office. Classrooms are equipped with closed circuit TV in addition to conventional audiovisual equipment. Also, all off-campus centers, in particular Lakehurst, are equipped with state-of-the-art telecommunications and data-processing equipment, which allow for speedy registration, more accurate records keeping, and state-of-the-art communications between professor and student via computer bulletin boards and other data-processing peripherals.

Several of the available programs and courses are particularly applicable to Department of Defense military and civilian personnel working at Lakehurst, Fort Monmouth and Fort Dix, New Jersey, and at DISC–ICP, Philadelphia, Pennsylvania. For example, the Lakehurst Graduate Center offers a Master of Science in Acquisition and Contract Management for the career-oriented acquisition specialist.

TUITION

Tuition costs for courses conducted by Florida Tech for School of Extended Graduate Studies students will normally not exceed tuition charges at the Melbourne campus and may be less. The following charges are effective at Northeast Graduate Center with the summer semester 2004.

- Graduate course, Northeast Center student: $395 per semester credit hour/$1,185 per 3 semester credit hours
- Distance Learning, online course: $395 per credit, $1,185 per 3-credit course

BENDER, J., Adjunct Professor, Management. B.B.A., CUNY; M.B.A., Hofstra University; D.B.A., Nova University.

BLALACK, R., Associate Professor, Management. M.B.A., D.B.A., Georgia State University.

CARROLL, J.J., Adjunct Professor, Management. B.S.I.E., New Jersey Institute of Technology; M.B.A., Rutgers University; D.B.A., Nova University (CMA, CPA, New Jersey).

COLEMAN, N.P., Adjunct Professor, Management. B.A., University of Virginia; M.A., Ph.D., Vanderbilt University.

CROSS, J., Adjunct Professor, Management. B.S., Monmouth College; M.B.A., Long Island University; D.B.A., Nova University.

EDWARDS, R.P., Adjunct Professor, Management. B.A., M.A., Rutgers University; Ph.D., New School for Social Research, New York.

FASS, S.G., Adjunct Professor, Management. B.A., CUNY; M.P.A., Troy State University (PMP).

GIBSON, A.E., Adjunct Professor, Management. B.A., Denison University; M.S., Case Institute; Ph.D., Virginia Tech.

HANKO, K.J., Adjunct Professor. B.A., Rutgers; J.D., Western New England School of Law; L.L.M., New York University School of Law; M.A., Salve Regina University.

HASSMILLER, R.H., Adjunct Professor, Management. B.A., M.S., University of Miami; Ph.D., Florida State University.

HILL, T., Adjunct Professor, Procurement. B.S., Allentown College of St. Francis; J.D., Duquesne University.

HOY, C.M., Adjunct Professor, Management. B.A., Montclair State College; M.A., M.Ph., Ph.D., Columbia University.

JU, W., Adjunct Professor, Management. B.S., University of New Mexico; M.C., George Washington University; Sc.M., Ph.D., Brown University.

KANE, M., Adjunct Professor, Procurement. B.A., CUNY; J.D., St. John's Law School.

KOVELOWSKI, C., Adjunct Professor, Management. B.S., Rider College; Ed.D., Nova University.

MUEHLIG, J., Adjunct Professor, Management. B.A., Columbia College; M.S., Columbia Graduate School of Business; Ph.D., New York University.

PARISE, R.J., Adjunct Professor, Procurement. B.A., SUNY–Binghamton; J.D., Brooklyn Law School.

PROVITERA, M.J., Adjunct Professor, Management. B.S., CUNY; M.B.A., St. John's University; D.B.A., Nova University.

TRAFTON, R., Adjunct Professor, Procurement. B.A., Quinnipiac College; J.D., Franklin Pierce Law Center.

WILLIAMS, G.T., Adjunct Professor, Procurement. B.A., Villanova University; J.D., Rutgers University.

ORLANDO GRADUATE CENTER COMMUNICATION DIRECTORY

Personnel

Dr. David E. Clapp
irector , raduate tudies

Mary H. Collins
enior esident d inistrator

Rebecca Ripley
taff ssistant

Office Hours

Monday–Friday 8:30 a.m.–5:30 p.m.
oger enter

Contacts

(407) 894-9961
(407) 894-8583 Fax

Lockheed Martin Electronics and Missiles Group
(407) 356-3671
MP-147

Mailing Address

Florida Tech Orlando Graduate Center
Saratoga Building, Koger Executive Center
3165 McCrory Place, Suite 161
Orlando, FL 32803

DEGREE PROGRAMS IN RESIDENCE

Additional Degree Programs Available Via Distance Learning: www.segs.fit.edu

Orlando Graduate Center

Florida Tech conducts an evening, graduate-level, professional development program for students in the Orlando area at Florida Tech's Graduate Centers with classes offered on-site at Lockheed Martin Electronic and Missiles Group facilities, the Siemens Westinghouse Power Corporation, Florida Hospital (South) and the Koger Executive Center, Orlando.

By agreement with the Commander, Naval Training Center, Orlando, Florida Tech initiated a graduate-level professional development program at that site in January 1980. Major commands supported include the Recruit Training Command, Naval Administrative Command, Service School Command, Naval Training Systems Center, Naval Nuclear Power School, Naval Regional Medical Center and the U.S. Army Project Manager for Training Devices. Students from other organizations, such as the Defense Contract Administration Services Management Area (DCASMA), Westinghouse and Lockheed Martin Corporations, also participate in Florida Tech's graduate program at Orlando. The courses are available to anyone who meets the admission requirements of the university. The course offerings listed in this section may be adjusted as required to provide maximum responsiveness to the needs of the participants.

Lockheed Martin began operations as the Martin Marietta Electronic and Missiles Group, a multi-industry enterprise, in existence since 1957 with a history of dedication to support our nation's defense commitments. It comprises a capability for total weapon system research, design and development through production, deployment and field support.

All classes offered in Orlando are taught by Florida Tech faculty. Students may take courses at other Florida Tech sites, including the Florida Tech Graduate Center, Koger Executive Center in Orlando as well as online courses over the Internet.

The Steam Turbine Division of Westinghouse moved to Orlando in 1983. Evening courses were initiated shortly thereafter by Florida Tech for Siemens Westinghouse employees. Other students are also permitted to enroll in the courses listed in this section. Siemens Westinghouse and other employees can also take Florida Tech courses at Florida Hospital (South), Florida Tech's Graduate Center, Koger Executive Center in Orlando, and online.

Classes commenced in summer 1985 at Florida Hospital (South). Students may enroll in classes for other degree programs at Lockheed Martin, Siemens Westinghouse Power Corporation and the Florida Tech Graduate Center in Orlando.

In July 1986, Florida Tech's Graduate Center established offices and classrooms in the Koger Executive Center at 3165 McCrory Place, Orlando. Additional classes are made available for all admissible students in a convenient location with a

The Orlando program provides for the continuing education of personnel to maintain their professional and technical competence, and for their development and career progression. Any degree obtained by a U.S. government employee in the process of receiving such professional development is an incidental by-product thereof.

The program provides the working person the chance to earn a graduate degree in two years as a part-time student taking a normal load of two courses per semester, each course requiring class attendance one evening a week. Transfer credits earned through certain military courses and at other universities may shorten the time required.

The classroom environment provides a unique opportunity for an extensive exchange of ideas and viewpoints among representatives of education, industry and U.S. government military and civilians.

Library facilities for the students are provided by agreement at the University of Central Florida and through online access or interlibrary loan with the main campus library in Melbourne, Florida.

Program approval has been awarded by the Florida State Approving Agency for payment of veterans' benefits to qualified students.

Registration for each semester is conducted at designated locations in Orlando as scheduled in the "Academic Calendar" for the Orlando Graduate Center.

TUITION

Tuition costs for courses conducted by Florida Tech for School of Extended Graduate Studies students will normally not exceed tuition charges at the Melbourne campus and may be less. The following charges are effective at Orlando Graduate Center with the summer semester 2004.

- Graduate course, Orlando student: $395 per semester credit hour/$1,185 per 3 semester credit hours
- Distance Learning, online course: $395 per credit, $1,185 per 3-credit course
- Graduate directed study, Orlando student: $495 per semester credit hour/$1,485 per 3 semester credit hours
- Graduate directed study, Melbourne student: $880 per semester credit hour/$2,640 per 3 semester credit hours
- Graduate course except Psychology Doctoral Program, Melbourne student: $780 per semester credit hour/$2,340 per 3 semester credit hours
- Audited course: $225 per semester credit hour
- Continuing Education Unit (noncredit): $225 per CEU

HORTOS, WILLIAM, Adjunct Professor, Com-

Personnel
Dr. Norman W. Chlosta
irector , raduate tudies
Lisa Park
esident d inistrator
Leesa Marie Orton
ssistant esident d inistrator
Jennifer Mathis
enior d inistrati e ler

Contacts
(301) 862-1004
(240) 384-0211 (Fax)
E-mail patuxent@fit.edu
www.segs.fit.edu/patuxent

Office Hours
Monday–Friday 8:00 a.m.–4:30 p.m.
ther ti es a oint ent

Mailing Address
Florida Tech Graduate Center
U.S. Naval Air Station
Building 1489
P.O. Box 2212
Patuxent River, MD 20670

- Graduate directed study, Patuxent student: $495 per semester credit hour/$1,485 per 3 semester credit hours
- Graduate directed study, Melbourne student: $880 per semester credit hour/$2,640 per 3 semester credit hours
- Graduate course except Psychology Doctoral Program, Melbourne student: $780 per semester credit hour/$2,340 per 3 semester credit hours
- Audited course: $225 per semester credit hour
- Continuing Education Unit (noncredit): $225 per CEU

ACADEMIC CALENDAR

Fall 2004 Semester (Aug. 30–Dec. 10)

ul Registration begins
ug FALL SEMESTER BEGINS
e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2005
e t Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
e t Holiday *a or a*
e t Makeup class for holiday
ct Holiday *olu us a*
ct Last day to withdraw from a class with a final grade of W
o Holiday *Than sgiving a*
ec Last day of classes
ec Final Exams

Spring 2005 Semester (Jan. 10–April 22)

o Registration begins
an SPRING SEMESTER BEGINS
an Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Summer Semester 2005
an Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
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CASLER, J.G., Adjunct Professor, Management. B.S., South Dakota State University; M.S., University of West Florida; Ph.D., North Dakota State University.

CHLOSTA, N.W., Assistant Professor, Management and Director, Graduate Studies. B.S., St. Francis University; M.E.A., George Washington University; M.P.A., D.P.A. (ABD), University of Southern California.

COOKSEY, L.M., Adjunct Professor, Management. B.S., University of Maryland; M.S., Florida Institute of Technology.

DZIEWIT, P.A., Adjunct Lecturer, Management. B.S., Towson State University; M.S., Florida Institute of Technology.

ELELE, J.N., Adjunct Professor, Computer Science and Operations Research. B.S., M.S., Ph.D., University of Arizona.

GILL, J.A., Adjunct Professor, Computer Science. B.S., University of West Florida; M.S., United States Naval Post Graduate School; Ph.D., University of London.

GORDON, V.G., Associate Professor, Mechanical Engineering. B.S., Auburn University; M.S., Ph.D., U.S. Naval Postgraduate School.

GRIFFITH, G.W., Adjunct Professor, Management. B.A., J.D., University of Georgia.

HAWKINS, F., Adjunct Professor, Management. B.S., University of Virginia; M.S., Pennsylvania State University; Ph.D., University of Maryland.

HEFFERNAN, G.M., Adjunct Professor, Management. B.A., University of Dallas; M.A., Ph.D., George Mason University.

KACHMAN, N.J., Adjunct Professor, Engineering. B.S., M.S., Ph.D., University of Michigan.

LADUCA, N.J., Adjunct Professor, Management. B.S., U.S. Naval Academy; M.S., D.B.A., George Washington University.

LONG, G.D., Adjunct Professor, Computer Science. B.S., Massachusetts Institute of Technology; M.S, Ph.D., University of Maryland.

LONG, J.M., Assistant Professor, Mechanical Engineering. B.S., M.S., Ph.D., Johns Hopkins University.

MALEY, S., Adjunct Professor, Aerospace Engineering. B.S., University of Massachusetts; M.S., Ph.D., Purdue University.

MARSHALL, H., Adjunct Professor, Management. B.S., University of Maryland University College; M.S., Johns Hopkins University; Ph.D. (ABD), The Fielding Institute.

MASTERS, G.M., Associate Professor, Electrical Engineering. B.S., M.S., Massachusetts Institute of Technology; Ph.D., University of Florida.

MAVOR, T.P., Adjunct Professor, Mechanical Engineering. B.S., M.S., Worcester Polytechnic Institute; Ph.D., University of Delaware.

MEANS, T.B., Adjunct Professor, Management. B.S., Ph.D., Pennsylvania State University; M.Ed., Vanderbilt University.

MISHLER, J.D., Adjunct Professor, Management. B.S., Macalester College; M.S., University of Southern California; Ph.D., George Washington University.

MODJESKI, R.B., Adjunct Professor, Opera-

REDSTONE ARSENAL GRADUATE CENTER COMMUNICATION DIRECTORY

Personnel

Dr. William C. Wall Jr.
irector , raduate tudies

Mr. Jack Macris Jr.
esident d inistrator

Ms. K. Bush
esident d inistrator

Ms. April Fortner
ste s d inistrator

Ms. Wendy Land
enior d inistrati ler

Contacts

(256) 881-7878
(256) 881-2212 Fax
Redstone@segs.fit.edu

Office Hours

Monday–Friday 9:00 a.m.–5:00 p.m.

Mailing Address

Florida Tech Graduate Center
Sparkman Complex
Building 5304, Room 4326
Redstone Arsenal, AL 35898

DEGREE PROGRAMS IN RESIDENCE

- Distance Learning, online course: $395 per credit, $1,185 per 3-credit course
- Graduate directed study, Redstone student: $400 per semester credit hour/$1,200 per 3 semester credit hours
- Graduate directed study, Melbourne student: $880 per semester credit hour/$2,640 per 3 semester credit hours
- Graduate course except Psychology Doctoral Program, Melbourne student: $780 per semester credit hour/$2,340 per 3 semester credit hours
- Audited course: $225 per semester credit hour
- Continuing Education Unit (noncredit): $225 per CEU

ACADEMIC CALENDAR

Fall 2004 Semester (Aug. 30–Dec. 10)

ul Registration begins
ug FALL SEMESTER BEGINS
e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2005
e t Last day to register, add a class, drop a class with a full tuition refund, or drop a class without receiving a grade of W
e t Holidays [illegible] a class,
er n

GLASSCOCK, L.G., Adjunct Lecturer. B.S., Auburn University; M.B.A., University of North Alabama.

GULBRO, R.D., Adjunct Professor, Management. B.S., M.B.A., University of Alabama; D.B.A., Mississippi State University.

HOWELL, L.W. JR., Adjunct Professor, Management. B.S., Florida Institute of Technology; Ph.D., Virginia Polytechnic Institute and State University.

KRAMER, R.D., Adjunct Professor, Management. B.A.E., Auburn University; M.S.E., Ph.D., University of Alabama–Huntsville.

LESTER, R.A., Adjunct Professor, Management. B.S., University of North Alabama; M.A., University of Alabama; Ph.D., University of Mississippi.

MARSHALL, D.D., Adjunct Professor, Management. B.S., M.S., University of Tennessee; M.B.A., Ph.D., University of Alabama–Huntsville.

MCCAIN, J.W., Adjunct Professor, Management. M.S., Ph.D., University of Alabama–Huntsville.

MCELYEA, E.D., Adjunct Lecturer, Management. B.S., Athens State College; M.B.A., M.S., Florida Institute of Technology.

PEVAHOUSE, A., Adjunct Professor, Management. M.B.A., Alabama A&M University; D.B.A., Louisiana Tech University.

PIEPLOW, T., Adjunct Professor, Management. M.B.A., Florida Institute of Technology; D.P.A., Nova Southeastern University.

PRICHARD, G.R., Adjunct Professor, Management. B.S., Tennessee Technological University; M.S., University of Maryland; Ph.D., University of Texas.

RATHBUN, W., Adjunct Professor, Management. J.D., University of Toledo College of Law.

SALLEY, D., Adjunct Proessor, Management. M.A., Duke University; Ph.D., Georgia State University.

TRUEBLOOD, R.P., Adjunct Professor, Computer Science. B.S., Auburn University; M.S., University of Tennessee; Ph.D., Virginia Polytechnic Institute and State University.

WALL, W.C. JR., Assistant Professor, Management and Director, Graduate Studies. B.S.M.E., Lafayette College; M.A.P.A., M.B.A., Ph.D., University of Oklahoma.

WHITE, T., Adjunct Professor, Management. M.S., University of Alabama; D.P.A., Nova Southeastern University.

WHITLEY, W.R., Adjunct Lecturer, Management. B.S., University of Alabama–Huntsville; M.B.A., University of Houston; Ed.D., University of Alabama–Tuscaloosa. (CPA, Alabama and Texas)

WILKES, W.W., Adjunct Professor, Management. B.S.E.E., Rensselaer Polytechnic Institute; M.B.A., University of Chicago; M.Sc., London School of Economics; D.A., Middle Tennessee State University.

SPACEPORT GRADUATE CENTER COMMUNICATION DIRECTORY

Personnel

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Dr. John Clark
rogra hair ace ste s and ace ste s anage ent
E-mail jfclark@fit.edu

Kennedy Space Center (KSC)
Mrs. Kim Simmons
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Patrick Air Force Base (PAFB)
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ranch d inistrator
E-mail cmalisze@fit.edu

Melbourne Branch
Ms. Joan Silvester
ssistant irector
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Patrick Air Force Base
(321) 784-2045
(321) 784-4586 Fax

Melbourne Branch
(321) 674-8874
(321) 951-7694 Fax

Office Hours

Kennedy Space Center
Monday & Thursday 11:00 a.m.–5:00 p.m.
Tuesday–Wednesday 9:00 a.m.–3:00 p.m.
Friday 9:00 a.m.–3:00 p.m.

Patrick Air Force Base
Monday–Thursday 9:00 a.m.–5:00 p.m.

Melbourne Branch
Monday–Friday 8:00 a.m.–5:00 p.m.

Mailing Address

Kennedy Space Center
Florida Tech Spaceport Graduate Center
Building TRM-032
Kennedy Space Center, FL 32899

Patrick Air Force Base
Florida Tech Spaceport Graduate Center
1020 Central Ave., Suite C-2
Patrick Air Force Base, FL 32925

Melbourne Branch
Attention: Joan Silvester
1501 Robert J. Conlon Blvd., Suite 140
Palm Bay, FL 32905

DEGREE PROGRAMS IN RESIDENCE

Additional Degree Programs Available Via Distance Learning—www.segs.fit.edu

Graduate Certificate Programs are available via Distance Learning, not in residence at the Florida Tech Spaceport Graduate Center.

Spaceport Graduate Center Degree Programs

The graduate-level programs offered at KSC and PAFB provide individuals the unique opportunity for conveniently continuing their education as part-time students to improve their professional and technical competence and to enhance their career development and progression. Carrying a normal load of two courses each semester, a qualified student can earn a master's degree in approximately six semesters or two years.*

Graduate degree programs offered (varies by teaching location)* in residence:

- Master of Science in Computer Information Systems (MS/CIS)
- Master of Science in Computer Science (MS/CS)
- Master of Science in Software Engineering (MS/SWE)
- Master of Science in Space Systems (MS/SPC)
- Master of Science in Space Systems Management (MS/SSM)

o letion of degree re uire ents a re uire ta ing courses at ore than one teaching location

ligi ilit Students can take courses at KSC, PAFB, the main campus, via distance learning, or at the Melbourne branch currently in Palm Bay, providing flexibility in scheduling and a wider selection of electives from which to choose. Individuals designated as off-campus students will pay the off-campus student tuition for courses taken at KSC, PAFB or via distance learning. The off-campus tuition rate is typically half the on-campus rate. Spaceport students who elect to take courses on the main campus or at the Melbourne branch will pay the main campus rate.

egistration Registration for KSC and PAFB students is conducted each semester at those locations beginning on the date scheduled in the Academic Calendar in this section. Registration will continue during normal office hours at KSC and PAFB through the first week of classes, although students are strongly urged to register before classes begin. Under certain circumstances, students may be a-10(ate ie fi-6ef)e Aetinue dentsthe first wpus rate.

at www.lib.fit.edu/. Other libraries located in Brevard County are available to students. These include the college libraries at Brevard Community College/U.C.F. in Cocoa, and Brevard Community College in Melbourne and Titusville. Finally, public libraries are located in Brevard County population centers to include a research library in Cocoa.

e ites It is strongly recommended that students with questions not answered in this catalog refer to one of the Web sites listed below.

- General university information// *ni ersit atalog* www.fit.edu
- School of Extended Graduate Studies: www.segs.fit.edu
- Spaceport Graduate Center: www.segs.fit.edu/spaceport
- Master's degree, Computer Science or Software Engineering: www.cs.fit.edu

ote Infor ation a out aster s degrees in co uter infor ation s ste s s ace s ste s or s ace s ste s an age ent lease refer to this catalog

ail All Florida Tech students are automatically assigned an fit.edu e-mail address. To access this information go to www.fit.edu and select "computing."

TUITION

Tuition costs for courses conducted by Florida Tech for School of Extended Graduate Studies students will normally not exceed tuition charges at the Melbourne campus and may be less. The following charges are effective at Spaceport Graduate Center with the summer semester 2004.

- Graduate course, Spaceport student (KSC or PAFB): $395 per semester credit hour/$1,185 per 3 semester credit hours
- Graduate course, Spaceport student (Melbourne branch): $780 per semester credit hour/$2,340 per 3 semester credit hours
- Distance Learning, online course: $395 per credit, $1,185 per 3-credit course
- Graduate directed study, Spaceport student: $495 per semester credit hour/$1,485 per 3 semester credit hours
- Graduate directed study, Melbourne student: $880 per semester credit hour/$2,640 per 3 semester credit hours
- Graduate course except Psychology Doctoral Program, Melbourne student: $780 per semester credit hour/$2,340 per 3 semester credit hours
- Audited course: $225 per semester credit hour
- Continuing Education Unit (noncredit): $225 per CEU

ACADEMIC CALENDAR

Fall 2004 Semester (Aug. 30–Dec. 10)

ul Registration begins
ug FALL SEMESTER BEGINS
e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2005
e t Last day to register, add a class, drop a class with a full tuition refund or drop a class without receiving a grade of W
e t Holiday *a or a*
ct Last day to withdraw from a class with a final grade of W
o Holiday *Than sgiving*
ec Last day of classes
ec Final Exams
ec Commencement (Main campus)
ec
an Winter Break/Offices Closed

Spring 2005 Semester (Jan. 10–April 22)

o Registration begins
an SPRING SEMESTER BEGINS
an Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Summer Semester 2005
an Last day to register, add a class, drop a class with a full tuition refund or drop a class without receiving a grade of W
arch Last day to withdraw from a class with a final grade of W
arch Summer Registration Begins
ril Last day of classes
ril Final Exams
May 7 Commencement (Main campus)

Summer 2005 Semester (May 2–Aug. 12)

arch Registration begins
a SUMMER TERM BEGINS
a Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Fall Semester 2005
a Last day to register, add a class, drop a class with a full tuition refund or drop a class without receiving a grade of W
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une Last day to withdraw from a class with a final grade of W
ul Holiday *Inde endence a* *
ul Fall Registration Begins
ug Last day of classes
ug Final Exams

Fall 2005 Semester (Aug. 29–Dec. 9)

ul Registration begins
ug FALL SEMESTER BEGINS
e t Last day to file a Petition to Graduate for students who plan to complete their requirements by the end of Spring Semester 2006
e t Last day to register, add a class, drop a class with a full tuition refund or drop a class without receiving a grade of W
e t Holiday *a or a*
ct Last day to withdraw from a class with a final grade of W
o Holiday *Than sgi ing* *
ec Last day of classes
ec Final Exams
ec Commencement (Main Campus)
ec
an Winter Break/Offices Closed

o classes Instructors ill deter ine the re uired a e u dates for holida s on the course s lla us

FACULTY AT SPACEPORT GRADUATE CENTER

VIRTUAL GRADUATE CENTER COMMUNICATION DIRECTORY

Web Site Address
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VIRTUAL GRADUATE CENTER DEGREE PROGRAMS ONLINE

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Virtual Graduate Center

The purpose of the Virtual Graduate Center is to extend the educational opportunity to pursue graduate studies to individuals and groups who are unable to access traditional resident-based graduate programs.

The Virtual Graduate Center offers complete master's degree programs in a total distance learning online environment. There is no requirement for U.S. residency.

Graduate credit certificate programs are also available online. See *ection* of this catalog for details about available graduate credit certificate programs.

Admission is open to all individuals who possess an undergraduate degree from a university or college that is regionally accredited in the United States. Individuals who possess a degree from other than a U.S. college or university may be admitted subject to conditions for International Student enrollments.

Admission criteria are discussed in *ection* of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

Visit our Web site at www.segs.fit.edu to obtain information on current course schedules and technical requirements for participation in distance learning online courses.

Distance Learning online course fees (except for the master's degree program in systems management, information systems concentration) are $395 per credit or $1,185 per 3-credit course, effective summer 2004. Directed study fees are $100 per credit hour. Main campus (Melbourne, Fla.) students are charged at main campus tuition rates.

By contractual agreement with Bisk Education Inc., the information systems concentration of the master's degree program in systems management is offered online exclusively through Bisk's proprietary course management system. Visit the Bisk Web site at www.floridatechonline.com for more information about the master's degree program, and for enrollment and tuition information.

A two-year projection of online courses can be accessed on our home page www.segs.fit.edu.

BAILEY, DONALD W., Adjunct Instructor. B.A., University of Maryland; M.S., Florida Institute of

EXTENDED GRADUATE STUDIES DEGREE PROGRAMS

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- *rogra is offered online e clusi through is Inc isit the is e site at floridatechonline co*

Degree Programs

PROFESSIONAL MASTER OF BUSINESS ADMINISTRATION (PMBA)

(Code: 8391)

The Professional Master of Business Administration program provides graduates with the skills needed to be adaptable performers in current positions and the competencies needed for long term career development. This program develops within managers the skills and techniques for team leadership coupled with integrity, social responsibility and a high degree of professionalism. This program is designed to meet the needs of three groups of people:

1. Individuals whose careers have previously focused on specialized areas and who seek to develop a more generalist perspective in anticipation of advancement.
2. Individuals with work experience and business degrees who wish to build on that foundation for further advancement.
3. Individuals with limited work experience who plan to use the P.M.B.A. as a foundation on which to begin their careers.

ADMISSION REQUIREMENTS

The applicant to the P.M.B.A. program must have a bachelor's degree from an accredited college with an acceptable grade point average and a satisfactory score on the Graduate Management Admission Test (GMAT). General admission requirements and the process for applying are presented in *ection* of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The Professional Master of Business Administration degree, with or without a concentration, is conferred upon students who have successfully completed 36 credit hours of core and elective courses as listed on the student's approved graduate program plan. Additional prerequisite courses may be required depending on the applicant's undergraduate preparation.

CURRICULUM

All P.M.B.A. options require completion of a common set of nine core courses that are designed to prepare the student for an ever-changing, dynamic organizational environment. The student must complete the prerequisite requirements, if any, before completing nine hours of core courses, or enrolling in a core course for which a prerequisite course is needed.

Prerequisite Courses (noncredit for this program)
Prerequisite courses are required of a student whose undergraduate major is outside the business area or who has not previously completed courses in these prerequisite areas. The exact number of prerequisite courses is dependent on courses completed during the student's undergraduate studies.

MGT 5000 Financial Accounting (or two undergraduate accounting courses)
MGT 5006 Introductory Managerial Statistics
MGT 5021 Business Law
MGT 5022 Analytical Methods for Management
MGT 5132 Basic Economics (or two undergraduate economics courses)

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Core Requirements (9 courses) 27
MGT 5001 Managerial Accounting 3
MGT 5002 Corporate Finance 3
MGT 5011 Management Theory and Thought 3
or
MGT 5013 Organizational Behavior 3
MGT 5014 Information Systems 3
MGT 5018 Policy and Strategy for Business* 3
MGT 5019 Marketing Management 3
MGT 5071 Decision Theory 3
or
MGT 5007 Intermediate Managerial Statistics 3
MGT 5133 Advanced Analytical Methods for Management 3
MGT 5149 Economics for Business 3

Electives (3 courses) 9

TOTAL CREDITS REQUIRED 36

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GENERAL PMBA

In addition to the nine core courses, students electing the P.M.B.A without a designated concentration are also required to take three elective courses. Electives may be taken with approval of both the faculty adviser and academic unit head from other graduate-level offerings in the School of Extended Graduate Studies.

Concentration in Acquisition and Contract Management

(Code: 8397)

In addition to the nine core courses, students electing the P.M.B.A. with a concentration in acquisition and contract management are also required to take three elective courses. This degree option is for those students who are interested in contracts management.

Core Requirements (9 courses) 27

Electives (3 courses) 9

These electives must be selected from the MGT 52XX (MGT 5211 to MGT 5270) list of contracts courses.

TOTAL CREDITS REQUIRED 36

Concentration in eBusiness

(Code: 8356)

In addition to the nine core courses, students electing the P.M.B.A. with a concentration in eBusiness are also required to take three elective courses. This degree option is for those students who are interested in eBusiness.

Core Requirements (9 courses) 27

Electives (3 courses) 9
MGT 5160 Introduction to eBusiness 3
MGT 5161 Policy and Organizational Strategies for eBusiness 3
MGT 5162 Survey of Information Technologies for eBusiness 3
MGT 5163 Marketing in an Internet-based Environment 3
MGT 5165 Special Topics in eBusiness 3
MGT 5166 Projects in eBusiness 3

TOTAL CREDITS REQUIRED 36

Concentration in Human Resources Management

(Code: 8400)

In addition to the nine core courses, students electing the P.M.B.A. with a concentration in human resources management are also required to take three elective courses. This degree option is for those students who are interested in human resources management.

Core Requirements (9 courses) 27

Electives (3 courses) 9
MGT 5015 Organizational Planning and Development 3
MGT 5016 Employee Relations 3
MGT 5033 Human Resources Management 3
MGT 5101 Leadership Theory and Effective Management 3
MGT 5105 Interpersonal Relations and Conflict Resolution 3
MGT 5106 Organizational Communication 3
MGT 5112 Seminar in Contemporary Issues in Human Resources Management 3
MGT 5138 Business Ethics 3

TOTAL CREDITS REQUIRED 36

Concentration In Information Systems

(Code: 8396)

In addition to the nine core courses, students electing the P.M.B.A. with a concentration in information systems are also required to take three elective courses. This degree option is for those students who are interested in information systems management.

Core Requirements (9 courses) 27

Electives (3 courses) 9
MGT 5070 Special Topics in Business 3
MGT 5150 Management of Software Systems 3
MGT 5151 Database Systems Management 3
MGT 5152 Computer Systems Administration 3
MGT 5153 Telecommunications Systems Management 3
MGT 5154 Advanced Management Information Systems 3

TOTAL CREDITS REQUIRED 36

The Graduate Record Examination (GRE) or Graduate Management Admission Test (GMAT) may be required for admission evaluation purposes. General admission requirements and the process for applying are discussed in *ection*, of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The M.P.A. is conferred on students who have successfully completed 36 credit hours of graduate work plus other course requirements as listed on the student's approved graduate program plan. Students without adequate undergraduate background will be required to complete all or part of the program prerequisites. Students who do not select an area of concentration may choose elective courses with the approval of both the faculty adviser and the academic unit head.

Program Prerequisites (noncredit for this program)
MTH 1701 College Algebra
MGT 5000 Financial Accounting (or two undergraduate accounting courses)

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Required Courses (9 courses) 27
MGT 5001 Managerial Accounting 3
MGT 5003 Public Finance 3
MGT 5006 Introductory Managerial Statistics 3
MGT 5010 Seminar in Research Methodology 3
MGT 5013 Organizational Behavior 3
MGT 5014 Information Systems 3
MGT 5035 Public Administration and Management 3
MGT 5040 Public Program Policy and Evaluation* 3
MGT 5132 Basic Economics 3

Electives (3 courses) 9
TOTAL CREDITS REQUIRED 36

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Students who do not select an area of concentration may choose electives from other graduate-level offerings in business, or other related disciplines, with the approval from both the faculty adviser and the cognizant academic unit head.

MASTER OF SCIENCE IN ACQUISITION AND CONTRACT MANAGEMENT (MS/ACM)

(Code: 8399)

ADMISSION REQUIREMENTS

The applicant to the Master of Science in Acquisition and Contract Management program must have a bachelor's degree; however, the degree need not be in business administration. Students who are graduates from other fields are encouraged to apply. Students with an undergraduate business degree or courses may be able to waive the program prerequisite requirements in the MS/ACM program based on an evaluation of their undergraduate academic transcripts. Prerequisite courses are required of a student whose undergraduate major is outside the business area or who has not previously completed the courses in these prerequisite areas. The exact number of needed prerequisite courses depends on courses completed during the student's undergraduate studies.

The Graduate Record Examination (GRE) or Graduate Management Admissions Test (GMAT) may be required for admission evaluation purposes. General admission requirements and the process for applying are discussed in *ection*, of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The degree of Master of Science in Acquisition and Contract Management is conferred upon students who have successfully completed 33 credit hours of graduate course work plus other course requirements as listed on the student's approved graduate program plan. Students without adequate undergraduate background will be required to complete all or part of the program prerequisites. Students may choose elective courses from those listed below.

Students with undergraduate credits for courses that they believe are equivalent to the program prerequisites should consult with their adviser concerning waiver of those courses.

Program Prerequisites (noncredit for this program)
MGT 5000 Financial Accounting (or two undergraduate accounting courses)
MGT 5132 Basic Economics (or two undergraduate economics courses)

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Required Courses (9 courses) 27
MGT 5001 Managerial Accounting 3
MGT 5002 Corporate Finance 3
MGT 5013 Organizational Behavior 3
MGT 5211 Procurement and Contract Management 3
MGT 5213 Contract Changes, Terminations and Disputes 3
MGT 5214 Cost Principles, Effectiveness and Control 3
MGT 5217 Contract and Subcontract Formulation 3
MGT 5218 Contract Negotiations and Incentive Contracts 3
MGT 5220 Contract Management Research Seminar* 3

Electives (2 courses) 6
MGT 5017 Program Management 3
MGT 5064 Cost and Economic Analysis 3
MGT 5084 Materiel Acquisition Management 3
MGT 5138 Business Ethics 3
MGT 5212 Advanced Procurement and Contract Management 3

MASTER OF SCIENCE IN AEROSPACE ENGINEERING (MS/AE)

(Code: 8134)

The Master of Science in Aerospace Engineering may be earned in one of three major areas: aerodynamics and fluid dynamics, aerospace structures and materials, and combustion and propulsion. Because the purpose of each program is to prepare the student for either a challenging professional career in industry or for further graduate study, the programs do not permit narrow specialization. Emphasis is on required course work in several disciplines in which an advanced-degree engineer in a typical industrial position is expected to have knowledge and problem-solving expertise beyond that normally obtained during an undergraduate engineering education.

ADMISSION REQUIREMENTS

An applicant should have an undergraduate major in a field related to aerospace engineering. Applicants whose bachelor's degrees are in other fields will normally be required to take some undergraduate course work in addition to the program described below, as determined by the department head. Applications are also invited from graduates with undergraduate majors in the physical sciences or mathematics. In these cases, at least one year of undergraduate course work in aerospace engineering is normally required prior to starting the master of science program. In evaluating an international application, due consideration is given to academic standards in the country where the undergraduate studies have been performed.

Aerodynamics and Fluid Dynamics

MAE 5110 Continuum Mechanics
MAE 5120 Aerodynamics of Wings and Bodies
MAE 5130 Viscous Flows
MAE 5140 Experimental Fluid Dynamics
MAE 5150 Computational Fluid Dynamics

Software and Systems
CSE 5231 Computer Networks
CSE 5251 Compiler Theory and Design
SWE 5001 Software Engineering 1

Students are exempted from this breadth requirement only if they can show evidence that they have passed courses equivalent to all of those on the category list. A student can substitute a listed course with another appropriate course only with permission of the student's adviser and department head.

The other course requirements are:

CSE 5500 Computer Science Seminar* 2
or
CSE 5501 Computer Sciences Internship* 2
CSE 5999 Thesis in Computer Science or Advanced Electives (CSE 5600 or higher).....6

Electives (at least 6 credits must be in Computer Science, numbered CSE 5600 or higher) 12
MTH 5051 Applied Discrete Mathematics 3

ne credit each in or t o credits in either course The internshi is co leted ith an infor ation technolog fir or industrial organi ation and is ro ded for students ith no rior e erience in a ractical infor ation technolog setting

All electives that apply to the program must be approved by the student's adviser. The computer science program office maintains an approved set of courses, including courses in other disciplines, from which electives can be selected. At most, six approved elective credits can be from other disciplines.

MASTER OF SCIENCE IN ELECTRICAL ENGINEERING (MS/EE)

(Code: 8042)

All master of science areas of specialization in electrical engineering can be taken on either a full-time or part-time basis. A two-year projection of course offerings is available on request. Course offerings are arranged to permit the master's program to be completed in three semesters for full-time students and in two calendar years for part-time students.

ADMISSION REQUIREMENTS

The undergraduate backgrounds of applicants for admission to the master's degree (MS/EE) programs vary considerably. U.S. applicants should have a bachelor of science or equivalent degree from an electrical engineering program accredited by ABET. In evaluating an international application, consideration is given to academic standards of the school attended and the content of the courses leading to the degree obtained.

Applicants whose bachelor's degrees are in other engineering fields, mathematics, or the physical sciences may be accepted, but will be required to remedy any deficiencies by satisfactorily completing a number of undergraduate courses in preparation for graduate study in electrical engineering.

DEGREE REQUIREMENTS

The Master of Science in Electrical Engineering is offered with four possible fields of specialization and both thesis and nonthesis paths. Each specialization requires a minimum of 30 credit hours of approved graduate study; however, within each specialization, course choices vary considerably. Prior to the completion of nine credit hours, the

student must submit for approval a master's degree program plan to indicate the path chosen and the specific courses to be taken. Up to six credit hours of thesis work may be included in the 30-credit-hour requirement. A nonthesis candidate must pass a master's final program examination.

CURRICULUM

Listed below are required and elective courses for the master of science specializations.

Electromagnetics Specialization

This area of specialization provides a background for research in important applications including radar, satellite communications, and related fields making use of antennas and guided wave communications.

ECE	5418	Field Theory of Guided Waves 1	3
ECE	5419	Field Theory of Guided Waves 2	3
ECE	5425	Antennas 1	3
ECE	5426	Antennas 2	3
		Approved electives (may include 6 credits of thesis)	18
		Seminar or Internship in ECE	1
		TOTAL CREDITS REQUIRED	31

Physical Electronics Specialization

This specialization is the combination of two interrelated sub-options: microelectronics and photonics. Recent advances in electronic systems have been largely due to the development of integrated circuits, lasers, optical computing and signal processing, as

ECE	5201	Linear Systems 1	3
ECE	5234	Communication Theory	3
	or		
ECE	5223	Digital Communications	3
ECE	5245	Digital Signal Processing 1	3
MTH	5425	Theory of Stochastic Signals	3
		Mathematics Elective	3

be notified of deficiencies at the time of acceptance. In addition to the preparatory work described, all degree requirements listed above for one of the master of science specializations must be fulfilled.

Electromagnetics Specialization
ECE 2112 Circuit Theory 2
ECE 3111 Electronics
ECE 3222 Signals and Systems
ECE 3331 Electron Devices
ECE 3442 Electromagnetic Waves

Physical Electronics Specialization
ECE 2112 Circuit Theory 2
ECE 3111 Electronics
ECE 3222 Signals and Systems
ECE 3331 Electron Devices
ECE 3442 Electromagnetic Waves (Photonics Option)
ECE 4332 Electrooptic Devices and Systems

Systems and Information Processing Specialization
ECE 1552 Computer Design
ECE 2112 Circuit Theory 2
ECE 3111 Electronics
ECE 3222 Signals and Systems
ECE 4221 Communication Systems
ECE 4231 Control Systems

Wireless Systems and Technology Specialization
ECE 2112 Circuit Theory 2
ECE 3111 Electronics
ECE 3222 Signals and Systems
ECE 3442 Electromagnetic Waves
ECE 4221 Communications Systems
MTH 2401 Probability and Statistics

MASTER OF SCIENCE IN ENGINEERING MANAGEMENT (MS/EM)

(Code: 8075)

The Master of Science in Engineering Management has been developed to meet the professional needs of the engineer who, although working in a technical field, finds it necessary to update his or her skills in engineering, as well as acquire knowledge in the management of engineering. Typically, the technical person finds that as he or she advances in the chosen field, the challenges of management increase as part of the overall responsibilities of the position. Many find that their careers would best be served by a program addressing both areas of their job responsibilities. This program is designed for those individuals.

The Master of Science in Engineering Management program is an interdisciplinary program administered by the College of Engineering and offered in cooperation with the School of Extended Graduate Studies. The program faculty includes specialists in engineering management, as well as the coordinators of the specialization areas.

ADMISSION REQUIREMENTS

An applicant for the master's program in engineering management should have a bachelor's degree from an ABET-accredited engineering program. Applicants with bachelor's degrees in physical sciences, computer science and mathematics will also be considered. In evaluating an international application, consideration is given to the academic standards of the school attended and the content of the courses. Letters of recommendation and a statement of educational objectives reflecting the applicant's professional experience and career goals are also encouraged. Applicants should also take the Graduate Record Examination (GRE). General admission requirements and the process for applying are discussed in *ection*, of this catalog.

DEGREE REQUIREMENTS

The master of science degree requires a minimum of 36 credit hours. Courses taken to satisfy admission prerequisites cannot be counted toward the degree requirements. Students without adequate undergraduate courses in accounting, statistics, computer applications and economics will be required to make up these deficiencies. Applicants whose bachelor's degrees are not in engineering will also be required to remedy any additional deficiencies by satisfactorily completing a number of undergraduate courses selected to meet the prerequisites for graduate study in their engineering area of specialization.

CURRICULUM

The program requires six courses in the management area and six courses from the engineering area. At least four courses should be taken from the engineering management (ENM) list and can be applied toward either the management or engineering requirement.

Management

Six courses with a clear focus on management are required. These courses may be from the foundation, core or elective courses, or from courses with a management emphasis from other academic units in the university. Each student meets with the engineering management program director and faculty with expertise in the field of management to select the six-course management sequence. A student must meet any prerequisites needed for a graduate course in management that may be required by the academic unit that offers the course.

Engineering

An engineering specialization is taken by every student based on his or her need for graduate education in technology. A specialization track can be drawn from any of the programs within the College of Engineering or closely allied disciplines such as mathematics or operations research. Each student meets with the engineering management program director and faculty familiar with the area of technical emphasis to form a sequence of five courses. A student must meet any prerequisites needed for a graduate engineering course.

A student may complete an internship with an industrial, government or service organization, or elect to prepare and defend a thesis to account for up to six semester hours of the 36 credits required for graduation. In order to meet graduation requirements, a nonthesis student must present a portfolio of competencies and a summary of the career relevance of his or her academic study.

MASTER OF SCIENCE IN HUMAN RESOURCES MANAGEMENT (MS/HRM)

(Code: 8350)

ADMISSION REQUIREMENTS

The applicant to the Master of Science in Human Resources Management program must have a bachelor's degree; however, the degree need not be in business administration. Students who are graduates from other fields are encouraged to apply. Students with an undergraduate business degree or courses may be able to waive some or all of the program prerequisites in the MS/HRM program based on an evaluation of their undergraduate academic transcripts. Prerequisite courses are required of a student whose undergraduate major is outside the business area or who has not previously completed the courses in these prerequisite areas. The exact number of needed prerequisite courses depends on courses completed during the student's undergraduate studies.

The Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT) may be required for admission evaluation purposes. General admission requirements and the process for applying are discussed in *ection*, of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The degree of Master of Science in Human Resources Management is conferred upon students who have successfully completed 33 credit hours of graduate course work plus other course requirements as listed on the student's approved graduate program plan. Students without adequate undergraduate background will be required to complete all or part of the program prerequisites. Students may choose elective courses from those listed below.

Students with undergraduate credits for courses that they believe are equivalent to the program prerequisites should consult with their adviser concerning waiver of those prerequisites.

Program Prerequisites (noncredit for this program)

MGT 5000 Financial Accounting (or two undergraduate accounting courses)
MGT 5132 Basic Economics (or two undergraduate economics courses)
MTH 1701 College Algebra

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Required Courses (9 courses) 27

MGT 5001 Managerial Accounting 3
MGT 5002 Corporate Finance 3
MGT 5006 Introductory Managerial Statistics 3
MGT 5013 Organizational Behavior 3
MGT 5014 Information Systems 3
MGT 5015 Organizational Planning and Development 3
MGT 5033 Human Resources Management 3
MGT 5112 Seminar in Contemporary Issues in Human Resources Management* 3
MGT 5138 Business Ethics 3

Electives (2 courses) 6

MGT 5016 Employee Relations 3
MGT 5021 Business Law 3
MGT 5101 Leadership Theory and Effective Management 3
MGT 5105 Interpersonal Relations and Conflict Resolution 3

TOTAL CREDITS REQUIRED 33

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MASTER OF SCIENCE IN LOGISTICS MANAGEMENT (MS/LM)

(Code: 8322)

ADMISSION REQUIREMENTS

The applicant to the Master of Science in Logistics Management program must have a bachelor's degree; however, the degree need not be in business administration. Students who are graduates from other fields are encouraged to apply. Students with an undergraduate business degree or courses may be able to waive the program prerequisite in the MS/LM program based on an evaluation of their undergraduate academic transcripts. Prerequisite courses are required of a student whose undergraduate major is outside the business area or who has not previously completed the courses in these prerequisite areas. The exact number of needed prerequisite courses depends on courses completed during the student's undergraduate studies.

The Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT) may be required for admission evaluation purposes. General admission requirements and the process for applying are discussed in *ection* of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The degree of Master of Science in Logistics Management is conferred upon students who have successfully completed 33 credit hours of graduate course work plus other course requirements as listed on the student's approved graduate program plan. Students without adequate undergraduate background will be required to complete the program prerequisites. Students may choose elective courses from several of the management or related academic disciplines by securing approval of both their faculty adviser and academic unit head.

Students with undergraduate credits for courses that they believe are equivalent to the program prerequisites should consult with their adviser concerning waiver of those prerequisites.

Program Prerequisites (noncredit for this program)
MGT 5000 Financial Accounting (or two undergraduate accounting courses)
MTH 1701 College Algebra

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Required Courses (9 courses) 27
MGT 5002 Corporate Finance 3
MGT 5006 Introductory Managerial Statistics 3
MGT 5014 Management Information Systems 3
MGT 5024 Production and Operations Management 3
MGT 5061 Systems and Logistics Support Management 3
MGT 5062 Logistics Policy* 4
MGT 5071 Decision Theory 3
MGT 5100 Distribution Management 3
MGT 5132 Basic Economics 3

Electives (2 courses)	6
MGT 5010 Seminar in Research Methodology**	3
MGT 5017 Program Management	3
MGT 5033 Human Resources Management	3
MGT 5060 Management of Assets	3
MGT 5063 Inventory Control Management	3
MGT 5064 Cost and Economic Analysis	3
MGT 5065 Supply Chain Management	3
MGT 5069 Advanced Supply Chain Management	3
MGT 5079 Traffic Management	3
MGT 5084 Material Acquisition Management	3
MGT 5087 Transportation Management	3
MGT 5500 Integrated Logistics Management	3
TOTAL CREDITS REQUIRED	33

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MASTER OF SCIENCE IN MANAGEMENT (MS/M)

(Code: 8381)

ADMISSION REQUIREMENTS

The applicant to the Master of Science in Management program must have a bachelor's degree; however, the degree need not be in business administration. Students who are graduates from other fields are encouraged to apply. Students with an undergraduate business degree or courses may be able to waive the program prerequisite in the MSM program based on an evaluation of their undergraduate academic transcripts. Prerequisite courses are required of a student whose undergraduate major is outside the business area or who has not previously completed the courses in these prerequisite areas. The exact number of needed prerequisite courses depends on courses completed during the student's undergraduate studies.

The Graduate Record Examination (GRE) or Graduate Management Admissions Test (GMAT) may be required for admission evaluation purposes. General admission requirements and the process for applying are discussed in *ection* of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The degree of Master of Science in Management is conferred upon students who have successfully completed 33 credit hours of graduate course work plus other course requirements as listed on the student's approved graduate program plan. Students without adequate undergraduate background will be required to complete all or part of the program prerequisites. Students may choose elective courses with the approval of both the faculty adviser and the program head.

Students with undergraduate credits for courses that they believe are equivalent to the program prerequisites should consult with their adviser concerning waiver of those prerequisites.

Program Prerequisites (noncredit for this program)
MTH 1701 College Algebra

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Required Courses (9 courses) 27
MGT 5000 Financial Accounting 3
MGT 5002 Corporate Finance 3
MGT 5006 Introductory Managerial Statistics 3
MGT 5011 Management Theory and Thought* 3
MGT 5014 Information Systems 3
MGT 5017 Program Management 3
MGT 5020 Applied Management Project** 3
MGT 5033 Human Resources Management 3
MGT 5132 Basic Economics 3

Electives (2 courses) 6
These electives can be chosen from those courses offered to emphasize the area of greatest interest and benefit to the student.

TOTAL CREDITS REQUIRED 33

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Concentration in Acquisition and Contract Management (MS/M–ACM)
(Code: 8403)

Program Prerequisites (See Note 1)

Required Courses (8 courses) 24
MGT 5000 Financial Accounting 3
MGT 5002 Corporate Finance 3
MGT 5006 Introductory Managerial Statistics 3
MGT 5011 Management Theory and Thought* 3
MGT 5014 Information Systems 3
MGT 5017 Program Management 3
MGT 5033 Human Resources Management 3
MGT 5132 Basic Economics 3

Directed Elective (1 course) 3
MGT 5220 Contract Management Research Seminar** 3

Electives (2 courses selected from concentration) 6
MGT 5070 Special Topics in Business 3
MGT 5084 Materiel Acquisition Management 3
MGT 5211 Procurement and Contract Management 3
MGT 5212 Advanced Procurement and Contract Management 3
MGT 5213 Contract Changes, Terminations and Disputes 3
MGT 5214 Cost Principles, Effectiveness and Control 3
MGT 5217 Contract and Subcontract Formulation 3
MGT 5218 Contract Negotiations and Incentive Contracts 3
MGT 5231 Government Contract Law 3
MGT 5240 Business and Legal Aspects of Intellectual Property 3
MGT 5270 Special Topics in Contract Management 3

TOTAL CREDITS REQUIRED 33

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Concentration in eBusiness (MS/M-eBUS)

(Code: 8404)

Program Prerequisites (See Note 1)

Required Courses (8 courses) 24

MGT 5000 Financial Accounting 3
MGT 5002 Corporate Finance 3
MGT 5006 Introductory Managerial Statistics 3
MGT 5011 Management Theory and Thought* 3
MGT 5014 Information Systems 3
MGT 5019 Marketing 3
MGT 5033 Human Resources Management 3
MGT 5132 Basic Economics 3

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Concentration in Information Systems (MS/M-IS)

(Code: 8406)

Program Prerequisites (See Note 1)

Required Courses (8 courses) 24

MGT	5000	Financial Accounting	3
MGT	5002	Corporate Finance	3
MGT	5006	Introductory Managerial Statistics	3
MGT	5011	Management Theory and Thought*	3
MGT	5014	Information Systems	3

Concentration in Transportation Management (MS/M-TM)

(Code: 8408)

Program Prerequisites (See Note 1)

Required Courses (8 courses) 24

MGT	5000	Financial Accounting 3
MGT	5002	Corporate Finance 3
MGT	5006	Introductory Managerial Statistics 3
MGT	5011	Management Theory and Thought* 3
MGT	5014	Information Systems 3
MGT	5017	Program Management 3
MGT	5033	Human Resources Management 3
MGT	5132	Basic Economics 3

Directed Elective (1 course) 3

MGT	5020	Applied Management Project** 3

Electives (2 courses selected from concentration) 6

MGT	5060	Management of Assets 3
MGT	5061	Systems and Logistics Support Management 3
MGT	5079	Traffic Management 3
MGT	5087	Management of Transportation Systems 3
MGT	5101	Leadership Theory and Effective Management 3
MGT	5138	Business Ethics 3

TOTAL CREDITS REQUIRED 33

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Applicants whose bachelor's degrees are in other engineering fields, mathematics or physical sciences may be accepted, but will be required to remedy any deficiencies by satisfactorily completing a number of undergraduate courses in preparation for graduate study in mechanical engineering.

DEGREE REQUIREMENTS

The Master of Science in Mechanical Engineering is offered with both thesis and nonthesis options. Each option requires a minimum of 30 credit hours of approved graduate study; however, within each option, course choices vary considerably. Prior to the completion of nine credit hours, the student must submit for approval a Master's Degree Program Plan to indicate the path chosen and the specific courses to be taken. Up to six credit hours of thesis work may be included in the 30 credit hour requirement. The nonthesis option requires that the candidate satisfactorily complete a minimum of 30 credit hours of course work and the master's final program examination.

CURRICULUM

Regardless of which degree path the student chooses, the degree candidate must choose one of three fields of specialization. Listed below are required and elective courses for the master of science specializations.

Structures, Solid Mechanics and Materials Specialization

Three core courses selected in consultation with the student adviser from the list below 9

MAE 5050 Finite Element Fundamentals
MAE 5060 Applications in Finite Element Methods
MAE 5410 Elasticity
MAE 5420 Advanced Mechanical Design
MAE 5460 Fracture Mechanics and Fatigue of Materials
MAE 5470 Principles of Composite Materials

Mathematics 6

Approved electives, which may include 6 credit hours of thesis 15

TOTAL CREDITS REQUIRED 30

Specialization in this area focuses on analytical and computational techniques as they apply in design. Each student plans a program of study in consultation with a member of the faculty whose professional field is related to the student's interests.

Thermal-Fluid Sciences Specialization

Three core courses selected in consultation with the student adviser from the list below 9

MAE 5130 Viscous Flows
MAE 5210 Conduction Heat Transfer
MAE 5220 Convection Heat Transfer
MAE 5230 Radiation Heat Transfer

Mathematics 6

Approved electives, which may include 6 credit hours of thesis 15

TOTAL CREDITS REQUIRED 30

Specialization in this area focuses on heat transfer, combustion and energy systems. Analytical, computational and experimental techniques are emphasized.

Dynamic Systems, Robotics and Controls Specialization

Three core courses selected in consultation with the student adviser from the list below 9

MAE 5610 Advanced Dynamics
MAE 5630 Modeling and Simulation of Dynamic Systems
MAE 5650 Robotics
MAE 5660 Robot Control

Mathematics 6

Approved electives, which may include 6 credit hours of thesis 15

TOTAL CREDITS REQUIRED 30

The student's program in this area will be tailored to provide the background and training to pursue a career in a desired and related area of interest. Examples of related areas include design and control of dynamic systems, robotics, vibration, automotive engineering, biomedical engineering, energy and power systems, etc.

MASTER OF SCIENCE IN OPERATIONS RESEARCH (MS/OR)

(Code: 8074)

The Master of Science in Operations Research offers concentrations that emphasize those areas of application most in demand in today's job market. Graduates have skills that include probability and statistics, deterministic and stochastic models, optimization methods, computation and simulation, decision analysis and the ability to effectively communicate with clients and managers. In addition, graduates have a breadth of knowledge that allows them to work in teams, interacting with people who bring different expertise to a problem. All areas involve expertise with standard computer software packages.

ADMISSION REQUIREMENTS

An applicant for the master's program in operations research should have an undergraduate major in a science or engineering discipline that requires a significant amount of mathematics. Business majors with strong quantitative backgrounds are also encouraged to apply. A proficiency in mathematics covering topics in calculus and linear algebra and the use of a high-level programming language such as FORTRAN, Pascal or C must be demonstrated by testing or suitable course work.

General admission requirements and the process for applying are presented in *ection*, of this catalog.

DEGREE REQUIREMENTS

The master of science degree can be pursued with either a thesis or nonthesis option; each requires 33 credit hours. Under the thesis option, up to six credit hours of thesis may be granted in place of electives toward the required 33 hours, and an oral defense is required. The nonthesis option requires a comprehensive examination. Courses taken to satisfy admission prerequisites cannot be counted toward the degree requirements.

CURRICULUM

The program's curriculum is design54 Twd a5F9 ide breadth with some flexibility to accommodate the diversity of backgrounds typically found in an operations research program. Greater flexibility isd a5F9 ided for the elective courses beyond the core. A student has the choice of developing greater depth in one area of specialization, aiming at eventual research in that area, or continuing to develop breadth across more than one area.

The Graduate Record Examination (GRE) or Graduate Management Admissions Test (GMAT) may be required for admission evaluation purposes. General admission requirements and the process for applying are discussed in *ection*, of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The degree of Master of Science in Project Management is conferred upon students who have successfully completed 33 credit hours of graduate course work plus other course requirements as listed on the student's approved graduate program plan. Students without adequate undergraduate background will be required to complete all or part of the program prerequisites. Students may choose elective courses from those listed below.

Students with undergraduate credits for courses that they believe are equivalent to the program prerequisites should consult with their adviser concerning waiver of those prerequisites.

Program Prerequisites (noncredit for this program)
MGT 5022 Analytical Methods of Management
MGT 5132 Basic Economics (or two undergraduate economics courses)

Concentration in Operations Research

(Code: 8359)

Three courses from the list below 9

MTH	5401	Applied Statistical Analysis	3
MTH	5411	Mathematical Statistics	3
ORP	5001	Deterministic Operations Research Models	3
ORP	5002	Stochastic Operations Research Models	3
ORP	5003	Operations Research Practices	3
ORP	5010	Mathematical Programming	3
ORP	5011	Discrete Optimization	3
ORP	5030	Decision Analysis	3
ORP	5040	Quality Assurance	3
ORP	5041	Reliability Analysis	3
ORP	5042	Reliability, Availability and Maintainability	3
ORP	5050	Discrete System Simulation	3

MASTER OF SCIENCE IN SOFTWARE ENGINEERING (MS/SWE)

(Code: 8050)

The master's degree program in software engineering primarily serves working software engineers who want to broaden their perspective while deepening their skills in software development. The program also accepts students who are already competent programmers, whose goal is to prepare for a career in software engineering. Courses in this program are taught at a level that assumes all students have a technical undergraduate degree and significant programming experience.

ADMISSION REQUIREMENTS

An undergraduate degree in computer science or a related discipline is required. Specific skills include experience in at least one programming language, and the content of the following courses:

CSE 2010 Algorithms and Data Structures
MTH 2051 Discrete Mathematics.

At a minimum, applicants must have taken at least two additional computer science classes at a level comparable to 3000 and 4000 level computer science classes in this catalog. Applicants are also required to take the GRE General Test and submit their results for consideration.

DEGREE REQUIREMENTS

The Master of Science in Software Engineering is offered with both thesis and nonthesis degree paths. Each requires a minimum of 32 credit hours of approved graduate study. Prior to the completion of nine credit hours, the student must submit for approval a program plan to indicate the option chosen and the specific courses to be taken. Up to six credit hours of thesis work may be included in the 32-credit-hour requirement. The nonthesis path requires successful completion of a comprehensive examination.

CURRICULUM

The master's degree program requires 32 credits, consisting of four required courses, four electives, two credits of seminar and/or internship, and either a thesis or two additional electives, as follows:

Required Courses

CSE	5500	Computer Science Seminar*	2
	or		
CSE	5501	Computer Sciences Internship*	2
SWE	5001	Software Engineering 1	3
SWE	5002	Software Engineering 2	3
SWE	5411	Software Testing 1	3
SWE	5621	Software Metrics and Modeling	3

** One credit each in [illegible] or two credits in either course. The internship is completed with an information technology firm or industrial organization and is restricted for students with no prior experience in a practical information technology setting.*

Electives

At least one elective must be selected from each of the areas of programming and foun-

program based on an evaluation of their undergraduate academic transcripts. Prerequisite courses are required of a student whose undergraduate major is outside the business area or who has not previously completed the courses in these prerequisite areas. The exact number of needed prerequisite courses depends on courses completed during the student's undergraduate studies.The Graduate Record Examination (GRE) or Graduate Management Admissions Test (GMAT) may be required for admission evaluation purposes. General admission requirements and the process for applying are discussed in *ection*, of this catalog. Individuals who do not meet the stated requirements for regular admission may petition to take graduate courses for credit as a continuing education applicant.

DEGREE REQUIREMENTS

The degree of Master of Science in Systems Management is conferred upon students who have successfully completed 33 credit hours of graduate course work plus other course requirements as listed on the student's approved graduate program plan. Students without adequate undergraduate background will be required to complete all or part of the program prerequisites. Students may choose elective courses from those listed below.

Students with undergraduate credits for courses that they believe are equivalent to the program prerequisites should consult with their adviser concerning waiver of those prerequisites.

Program Prerequisites (noncredit for this program)
MGT 5000 Financial Accounting (or two undergraduate accounting courses)
MGT 5006 Introductory Managerial Statistics
MGT 5022 Analytical Methods of Management
MGT 5132 Basic Economics (or two undergraduate economics courses)

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Required Courses (8 courses) 24
MGT 5002 Corporate Finance 3
MGT 5007 Intermediate Managerial Statistics 3
MGT 5013 Organizational Behavior 3
MGT 5014 Information Systems 3
MGT 5066 Systems Analysis and Modeling 3
MGT 5067 Systems Management* 3
MGT 5133 Advanced Analytical Methods for Management 3
MGT 5149 Economics for Business 3

Directed Electives (2 courses) 6
MGT 5017 Program Management 3
MGT 5024 Production and Operations Management 3
MGT 5061 Systems and Logistics Support Management 3
MGT 5062 Logistics Policy 3
MGT 5064 Cost and Economic Analysis 3
MGT 5068 Systems Engineering Management 3
MGT 5084 Materiel Acquisition Management 3
MGT 5137 Management of Engineering and Technology 3
MGT 5143 Advanced Information Systems 3
MGT 5145 Technology and Business Policy 3
MGT 5146 Management of Innovation 3
MGT 5147 Management of Technology Research Seminar 3
MGT 5148 Design and Analysis of Experiments 3

Elective (1 course).....3
An elective can be chosen from those courses offered to emphasize the area of greatest interest and benefit to the student.

TOTAL CREDITS REQUIRED 33

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Concentration in Information Systems

(Code: 8402)

Program Prerequisites (noncredit for this program)

Required Courses (8 courses).....24
MGT 5002 Corporate Finance.....3
MGT 5007 Intermediate Managerial Statistics.....3
MGT 5013 Organizational Behavior.....3
MGT 5014 Information Systems.....3
MGT 5066 Systems Analysis and Modeling.....3
MGT 5067 Systems Management*.....3
MGT 5133 Advanced Analytical Methods.....3
MGT 5149 Economics for Business.....3

Directed Electives (3 courses).....9
MGT 5070 Special Topics in Business.....3
MGT 5150 Management of Software Systems.....3
MGT 5151 Database Systems Management.....3
MGT 5152 Computer Systems Administration.....3
MGT 5153 Telecommunications Systems Management.....3
MGT 5154 Advanced Management Information Systems.....3

TOTAL CREDITS REQUIRED 33

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Concentration in Operations Research

(Code: 8331)

Program Prerequisites (noncredit for this program)

Required Courses (8 courses).....24
MGT 5002 Corporate Finance.....3
MGT 5013 Organizational Behavior.....3
MGT 5014 Information Systems.....3
MGT 5066 Systems Analysis and Modeling.....3
MGT 5067 Systems Management*.....3
MGT 5149 Economics for Business.....3
MTH 5401 Applied Statistical Analysis.....3
ORP 5001 Deterministic Operations Research Models.....3

Directed Electives (3 courses).....9
MTH 5411 Mathematical Statistics.....3
ORP 5002 Stochastic OR Models.....3
ORP 5003 Operations Research Practices.....3
ORP 5010 Mathematical Programming.....3
ORP 5011 Discrete Optimization.....3
ORP 5030 Decision Analysis.....3
ORP 5040 Quality Assurance.....3
ORP 5041 Reliability Analysis.....3
ORP 5042 Reliability, Availability and Maintainability.....3
ORP 5050 Discrete System Simulation.....3

TOTAL CREDITS REQUIRED 33

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CURRICULUM

Graduate Certificate in Business Management

Required Course

MGT 5013 Organizational Behavior 3

Elective Courses (4 required) 12

MGT 5000 Financial Accounting 3
MGT 5001 Managerial Accounting 3
MGT 5002 Corporate Finance 3
MGT 5014 Information Systems 3
MGT 5017 Program Management 3
MGT 5019 Marketing 3
MGT 5024 Production Management 3
MGT 5033 Human Resources Management 3

TOTAL CREDITS REQUIRED 15

Note: An elective course may be substituted with the permission of the Academic Unit Head.

Graduate Certificate in Contract Management

Required Course

MGT 5211 Procurement and Contract Management 3

Elective Courses (4 required) 12

MGT 5212 Advanced Procurement and Contract Management 3
MGT 5213 Contract Changes, Terminations and Disputes 3
MGT 5214 Cost Principles, Effectiveness and Control 3
MGT 5217 Contract and Subcontract Formulation 3
MGT 5218 Contract Negotiations and Incentive Contracts 3
MGT 5220 Contract Management Research Seminar 3
MGT 5270 Special Topics in Contract Management 3

TOTAL CREDITS REQUIRED 15

Note: An elective course may be substituted with the permission of the Academic Unit Head.

Graduate Certificate in eBusiness

Required Course

MGT 5160 Introduction to eBusiness 3

Elective Courses (4 required) 12

MGT 5070 Special Topics in Business: eLaw 3
MGT 5161 Policy and Organizational Strategies for eBusiness 3
MGT 5162 Survey of Information Technologies for eBusiness 3
MGT 5163 Marketing in an Internet-based Environment 3
MGT 5165 Special Topics in eBusiness 3
MGT 5166 Projects in eBusiness 3

TOTAL CREDITS REQUIRED 15

Note: An elective course may be substituted with the permission of the Academic Unit Head.

Graduate Certificate in Program Management

Required Course

MGT 5017 Program Management.....3

Elective Courses (4 required) 12

microprogrammed control, pipeline computers, hierarchical memory systems and input/output subsystems. Noncredit for CS majors. Prerequisites: CSE 5001.

CSE 5230 OPERATING SYSTEMS 1 (3 credits). A study of the initial components and various functions provided by an operating system. Topics include the structure of operating systems, process scheduling, process synchronization, memory management, virtual memory, file sys-

CSE 5691 SEARCH AND ARTIFICIAL INTELLIGENCE (3 credits). A survey of the latest results in AI research on effective search strategies for intelligent systems. Constructive and local approaches to search, heuristic search algorithms including A* and IDA, and adversary search techniques such as minimax and a-b will be investigated. Prerequisites: CSE 5290.

CSE 5692 CONSTRAINT REASONING (3 credits). Foundations of constraint satisfaction and constraint-based reasoning; problem representation and characterization; consistency checking, heuristics and search; deterministic and stochastic solving methods; applications such as scheduling, timetabling and temporal reasoning. CSE 5211 and CSE 5290 are recommended. Prerequisites: CSE 5100.

CSE 5693 MACHINE LEARNING (3 credits). Computational paradigms and techniques in learning and adaptation. Topics include tree learning, rule learning, genetic algorithms, neural networks, case-based learning, Bayesian learning,

ECE 5112 INTRODUCTION TO WIRELESS SYSTEMS AND APPLICATIONS (3 credits). Princi-

ECE 5311 MICROELECTRONICS FABRICATION LAB (3 credits). Hands-on fabrication and testing of integrated circuits including oxidation, diffusion, photolithography, metallization and etching. Students perform all process steps required, beginning with polished silicon wafers and ending with completed integrated circuits that are tested and characterized.

ECE 5333 ANALOG IC DESIGN (3 credits). Design of analog integrated circuits using Bipolar, CMOS and related technologies. Topics include Bipolar and MOS DC/AC models, fundamental single-stage amplifier topologies, current sources and bias networks, power amplifier topologies and opamp circuit design. Prerequisites: ECE 3111, ECE 3331.

ECE 5335 ADVANCED IC DESIGN AND SIMULATION (3 credits). Design of advanced analog circuit and system ICs using opamps and transconductance amplifiers as the core component. Topics include opamp modeling, fully differential opamp considerations and noise limitations. Filter approximation and active network synthesis using switched-capacitor techniques. A/D and D/A conversion. Prerequisites: ECE 5333.

ECE 5350 OPTICAL ELECTRONICS (3 credits). Principles of stimulated emission; electromagnetic field modes in optical resonators; ray tracing techniques in laser resonators and beam delivery systems; Gaussian beam profiles and laser linewidths; noise in lasers and optical amplifiers; excitation methods; mode locking and Q-switching techniques; picosecond and femtosecond laser pulse generation; optical bistable devices.

ECE 5351 FIBER-OPTIC COMMUNICATION SYSTEMS (3 credits). Includes optical fiber links, comparison between optical and electronic communication links; data encoding and bit error rates; properties of single, multimode and polarization preserving optical fibers, including attenuation, pulse spreading, bandwidth and maximum bit rate; transmitter and receiver design considerations, link design.

ECE 5352 FIBER-OPTIC SENSOR SYSTEMS (3 credits). Students study fundamental theory and state-of-the-art fiber-optic sensor systems; comparison with conventional sensors for strain, temperature, electric and magnetic fields; specialized fiber-optic components; use of multimode, singlemode, polarization preserving and high birefringence optical fibers, interferometric and intensity-based sensor architectures.

ECE 5353 OPTICAL COMPUTING (3 credits). A study of the basic principles, applications and recent advances in optical signal processing. Topics include diffraction theory, Fourier transform optics, devices, machine vision algorithms, optical neural networks.

ECE 5354 ACOUSTOOPTIC AND ELECTRO-OPTIC DEVICES (3 credits). Theory of operation and system applications, including optical wave propagation through an anisotropic medium, electrooptic and acoustooptic effects; Raman-Nath and Bragg regimes of operation, acoustooptic and electrooptic material properties and selection criteria, operation of laser modulators, deflectors and frequency.

ECE 5355 ELECTROOPTICS LABORATORY (3 credits). Lectures and experiments in photonics with emphasis on fiber optics, optical fibers, photodetectors, links, sensors, etc.

ECE 5356 OPTICAL WAVEGUIDES AND DEVICES (3 credits). Applications of Maxwell's equations and time-harmonic electromagnetic waves to fiber-optical waveguides; ray trajectories; electromagnetic fields in single- and multimode fibers; attenuation and dispersion mechanisms; inelastic scattering and nonlinear propagation; erbium-doped ultra-broadband optical traveling wave amplifiers.

ECE 5358 ADVANCED TOPICS IN PHOTONICS (3 credits). Addresses state-of-the-art topics in the current literature in electrooptics.

ECE 5370 SPECIAL TOPICS IN PHOTONICS (3 credits). Topics of current interest in the technical literature on electrooptics.

ECE 5371 SPECIAL TOPICS IN MICROELECTRONICS (3 credits). Topics of current interest in the technical literature on microelectronics.

ECE 5410 ELECTRODYNAMICS 1 (3 credits). Electrostatics and boundary value problems; solutions of Laplace's and Poisson's equations in Cartesian, spherical and cylindrical coordinates; electrostatic multipole fields; fields in dielectrics; magnetostatics; Maxwell's equations; plane electromagnetic waves; guided waves and resonant cavities; antennas and vector diffraction.

ECE 5411 ELECTRODYNAMICS 2 (3 credits). Special relativity; Lorentz transformations, relativistic kinematics, relativistic energy and momentum; covariance in electrodynamics; relativistic transformations of electromagnetic

fields; Lagrangian and Hamiltonian formulations of relativistic particles and fields; the Lienard-Wiechert potentials; radiation from relativistically moving charges.

ECE 5412 ELECTRODYNAMICS 3 (3 credits). Klystrons and linear particle accelerators; proton synchrotrons and particle beam dynamics; synchrotron radiation; Cherenkov and transition radiation; free electron lasers. Prerequisites: ECE 5411.

ECE 5418 FIELD THEORY OF GUIDED WAVES 1 (3 credits). Maxwell's equations; time-harmonic electromagnetic waves; vector and scalar wave equations, analysis of electromagnetic field modes in rectangular and circular cylindrical waveguides using vector potential methods; phase and group velocity; transverse wave impedance; propagating waves and evanescent fields; resonant cavities.

ECE 5419 FIELD THEORY OF GUIDED WAVES 2 (3 credits). Hybrid field modes, longitudinal section electric (LSE) and magnetic (LSM) modes in partially filled waveguides; inhomogeneous boundary conditions and transcendental eigenvalue equations; dielectric waveguides and resonators; stripline and microstrip lines; ridged waveguides; spherical transmission lines and cavities.

ECE 5425 ANTENNAS 1 (3 credits). Students review basic electromagnetic principles; radiation from infinitesimal electric and magnetic dipoles; antenna directivity and gain; the one-way and radar range equations; array theory and phased arrays; wire antennas and broadband antennas.

ECE 5426 ANTENNAS 2 (3 credits). Equivalence principles; vector diffraction and its application to horn and reflector antennas; pattern antenna synthesis.

ECE 5430 ELECTROMAGNETIC TENSOR GREEN FUNCTIONS (3 credits). Green functions and their application to electromagnetics. Sturm-Liouville systems, eigenfunction expansions, and integral equation formations of Green functions; time-harmonic electromagnetic fields and scalar Helmholtz equation Green function solutions; vector electromagnetic wave equations and Dyadic Green functions. Prerequisites: ECE 3442.

ECE 5431 COMPUTATIONAL ELECTROMAGNETICS (3 credits). Finite difference solutions of differential equations; moment method solutions of integral equations; FDTD, FEM and GTD in electrodynamics.

ECE 5450 AUTOMATED RF MEASUREMENT (3 credits). Operating principles of vector network analyzers and their use in measurement of active and passive two-port RF and microwave networks, including detailed treatment of scattering parameters; spectrum analyzers and their use in measuring two-port transfer functions and mixer signal responses.

ECE 5451 MICROWAVE CIRCUIT DESIGN (3 credits). Scattering matrix representation of two-port microwave networks; impedance matching networks and signal flow graphs; microwave transistor amplifier and oscillator design; synthesis of Butterworth and Tschebyscheff filters.

ECE 5525 SPEECH PROCESSING (3 credits). Fundamentals of digital speech processing, digital models for speech signals, acoustic theory of speech production, speech perception, speech analysis, homomorphic speech processing, coding of speech signals, linear predictive coding, methods for speech recognition and digital speech processing for man-machine communication by voice. Prerequisites: ECE 3222.

ECE 5526 SPEECH RECOGNITION (3 credits). Basic approaches in speech recognition, dynamic time warping, hidden Markov models and neural networks. Prerequisites: ECE 5525.

ECE 5527 SEACH AND DECODING IN SPEECH RECOGNITION (3 credits). Issues with searching for best answers from recognition hypotheses generated by the recognizer, including lattice networks, dictionaries, language modeling and its use in speech recognition, network search algorithms, word networks and standard lattice format, finite state grammars, bi-grams, n-grams and other language modeling techniques. Prerequisites: ECE 5526.

ECE 5528 ACOUSTICS OF AMERICAN ENGLISH SPEECH (3 credits). American English phonemes, speech and sound analysis, static properties of speech sounds, consonants, vowels, obsturent and vowel transitions, consonantal sonorant and vowels, consonant interactions and acoustic variability.

ECE 5534 COMPUTER NETWORKS 1 (3 credits). Theory, design, and analysis of computer communications systems. Topics include TCP/IP, Internet, the World Wide Web, ISO-OSI network architecture, LANs (Ethernet, Fast Ethernet, Token Ring, Token Bus, etc.), ATM, SONET, wireless communications, satellite networks, network modeling and simulation. Prerequisites: ECE 4561.

ECE 5999 THESIS IN ELECTRICAL OR COMPUTER ENGINEERING (0-3 credits). Individual work under the direction of a member or members of the graduate faculty on a selected topic.

ECE 6301 ADVANCED SEMICONDUCTOR DEVICE THEORY (3 credits). Several semiconductor physical phenomena related to electrical device operation are discussed, including scattering and recombination theory, interactions of photons and phonons, detailed band theory and quantum effects in semiconductor devices. Prerequisites: ECE 5301.

ENGINEERING MANAGEMENT

ENM 5100 QUALITY ENGINEERING (3 credits). Principles and techniques for establishing quality goals, identification of customer needs and requirements, measurement of quality objectives and product/process engineering to improve system performance. (Requirement: Instructor approval.)

ENM 5200 PROJECT ENGINEERING (3 credits). Principles of project management to design and develop products and services within budget, on time and to specification. Topics include work planning, organization design, requirements analysis, project control and PERT/CPM. (Requirement: Instructor approval.)

ENM 5310 TOPICS IN SYSTEMS ENGINEERING (3 credits). Topics selected from the field of systems engineering, such as requirement analysis, function allocation, cost engineering, risk management and system-level design. (Requirement: Instructor approval.)

ENM 5320 TOPICS IN TECHNICAL MARKETING (3 credits). Topics such as technology diffusion, competitive advantage, innovation, product development and positioning of high-technology products and services. (Requirement: Instructor approval.)

ENM 5330 TOPICS IN ENGINEERING OPERATIONS AND LOGISTICS (3 credits). Topics such as forecasting, plant location, facility layout, inventory systems, maintenance, process engineering, supply chains, scheduling, manufacturing and materials handling. (Requirement: Instructor approval.)

ENM 5340 TOPICS IN TEAM DYNAMICS AND PRODUCTIVITY (3 credits). Topics selected from the areas of team building, communications, creative problem solving in engineering, work design and engineering ethics. (Requirement: Instructor approval.)

ENM 5350 TOPICS IN ENGINEERING MODELING AND DESIGN (3 credits). Topics such as simulation, visualization, animation, graphics, CAD, deterministic and probabilistic models, and data analysis. (Requirement: Instructor approval.)

ENM 5360 TOPICS IN PRODUCT DEVELOPMENT AND TECHNOLOGY STRATEGY (3 credits).hip e.87xpe1ie en undnd prt takcr4-en undnd teamsu

MAE 5110 CONTINUUM MECHANICS (3 credits). Mathematical preliminaries, kinematics of motion, equation of conservation mass, equations for the rates of change of translational momentum, rotational momentum, and energy; the entropy inequality; models of material behavior including the linearly viscous fluid and the linearly elastic solid. Prerequisites: MTH 2001, MTH 2201.

MAE 5120 AERODYNAMICS OF WINGS AND BODIES (3 credits). Approximate analytic solution of nonlinear problems in aerodynamics (including those associated with the effects of compressibility) by iterative methods that exploit the smallness of small parameter; flow about slender wings and bodies; flow about wings with high-aspect ratio. Prerequisites: MAE 5110.

MAE 5130 VISCOUS FLOWS (3 credits). Theory of Navier-Stokes equations; exact solutions for steady and unsteady plane, duct, jet and stagnation point flows; Stokes and Oseen approximations; the Prandtl concept of the boundary layer and similarity solutions Blasius, Hiemenz, Faulkner and Skan, Hartree, etc.; approximate solutions for nonsimilar boundary layers. Prerequisites: MAE 5110.

MAE 5140 EXPERIMENTAL FLUID DYNAMICS (3 credits). Introduces students to test facilities such as wind tunnels and water tanks. Topics include measurements of force and pressure distribution on airfoil principles and applications of laser Doppler velocimetry, hot-wire anemometry, flow visualization methods and modern data acquisition systems (LabView). Prerequisites: MAE 5110.

MAE 5150 COMPUTATIONAL FLUID DYNAMICS (3 credits). Elliptic, parabolic and hyperbolic PDEs; finite-difference formulations; explicit and implicit methods, stability analysis; operator splitting, multistep methods; boundary conditions; grid generation techniques; applications involving Euler boundary layer and full Navier-Stokes equations. Prerequisites: MAE 5110, MTH 3201.

MAE 5160 GAS DYNAMICS (3 credits). Differential conservation equations; one-dimensional steady flows; unsteday wave motion; small pertubations and linearized flows; bodies of revolution, conical flows, and slender body theory; blunt-body flows; three-dimensional supersonic flows; transonic flows; the method of characteristics and numerical computation for supersonic flows; real gas effects. Prerequisites: MAE 5110, MAE 5150.

MAE 5180 TURBULENT FLOWS (3 credits). General introduction, isotropic, homogeneous and shear-flow turbulence, transport processes in turbulent flows, wall and free turbulent shear flows, atmospheric turbulence. Prerequisites: MAE 5110 or MAE 5130.

MAE 5190 SELECTED TOPICS IN FLUID DYNAMICS (3 credits). Selected topics reflecting the current research interests of the faculty and visiting scholars.

MAE 5210 CONDUCTION HEAT TRANSFER (3 credits). Conservation of energy in a deformable continuous medium, the thermal conductivity tensor, superposition, Duhamel's theorem and product solutions; heat flow in one dimension, similarity, Sturm-Liouville theory, the Laplace transform and variable conductivity; generalized Fourier series and Green function techniques. Prerequisites: MAE 4171.

MAE 5220 CONVECTION HEAT TRANSFER (3 credits). Review of the principle of energy conservation, heat conducting fluid; boundary-layer approximations for large Reynold's number; exact and approximate treatment of laminar internal and external forced convection; turbulent forced convection; and buoyancy-induced convection. (Requirement: Instructor approval or prerequisite course.) Prerequisites: MAE 5210.

MAE 5230 RADIATION HEAT TRANSFER (3 credits). Development of radiative properties from electromagnetic theory; theory and analysis of shape factors, enclosure radiative transfer with diffuse-gray and nongray surfaces and an introduction to radiative transfer within participating media and semitransparent solids. Prerequisites: MAE 4171.

MAE 5290 SELECTED TOPICS IN HEAT TRANSFER AND ENERGY (3 credits). Advanced topics reflecting the current research interests of the faculty and visiting scholars. (Requirement: Instructor approval.)

MAE 5310 COMBUSTION FUNDAMENTALS (3 credits). Includes equilibrium chemical thermodynamics and thermochemistry, chemical kinetics, transport phenomena and conservation equations; Rankine-Hugoniot theory, Chapman-Jouguet waves and detonation and deflagration; diffusion flames and premixed flames; flammability, ignition and quenching. Prerequisites: MAE 3062.

MAE 5320 INTERNAL COMBUSTION ENGINES (3 credits). Investigates the applications of thermodynamic, fluid dynamic and combustion principles to spark- and compression-ignition engines, and direct-injection stratified charge engines; ideal and actual cycle analyses; exhaust emissions, air pollution and control; engine heat transfer; and engine modeling. Prerequisites: MAE 5310.

MAE 5350 GAS TURBINES (3 credits). Introduces characteristics, performance analyses and design methodologies for stationary aircraft gas turbines. Topics include gas turbine cycle analyses, component design of combustors, compressors, turbines and nozzles, fluid dynamics and heat transfer, gas turbine fuels and emissions. Prerequisites: MAE 5310.

MAE 5360 HYPERSONIC AIR-BREATHING ENGINES (3 credits). Introduces the analysis of hypersonic aerospace vehicles, with emphasis on air-breathing propulsion concepts and systems. Topics include performance behavior and cycle analysis of ramjets and scramjets, supersonic mixing and combustion processes, and component design. Prerequisites: MAE 5310.

MAE 5390 SELECTED TOPICS IN COMBUSTION AND PROPULSION (3 credits). Address selected topics reflecting the current research interests of the faculty and visiting scholars. (Requirement: Instructor approval.)

MAE 5410 ELASTICITY (3 credits). An analysis of stress and strain in two and three dimensions, equilibrium, compatibility and constitutive equations, energy methods, flexure, stretching, torsion and contact stress formulations, axially symmetric problems. (Requirement: Instructor approval or prerequisite course.) Prerequisites: MTH 5201.

MAE 5420 ADVANCED MECHANICAL DESIGN (3 credits). Covers essential aspects of elasticity-plasticity, kinematics, dynamics, tribology and materials science. Prerequisites: MAE 4024, and MAE 4194 or MAE 4292.

MAE 5430 DESIGN OF AEROSPACE STRUCTURES (3 credits). Applications of mechanics to lightweight structures. Considers designing with monolithic and advanced composite materials; stiffened shell structures; buckling instability; failure analysis; variable section beams subjected to nonuniform loads; and computer formulations used in solving structural problems. Prerequisites: MAE 4281.

MAE 5460 FRACTURE MECHANICS AND FATIGUE OF MATERIALS (3 credits). Static and dynamic design and maintenance to prevent structural failure; presence of cracks, stress intensity factor, linear elastic and elastic-plastic fracture mechanics, fracture tests, fatigue crack initiation and propagation, environmental and corrosion effects, fatigue life prediction. Prerequisites: CHE 3260, CHE 3265, MAE 3083.

MAE 5470 PRINCIPLES OF COMPOSITE MATERIALS (3 credits). Particulate and fiber composites; forms, properties and processing of constituent materials; manufacture of composites, interaction of constituents, micro- and macro-mechanics and design of composite materials; stress-strain tensors and their transformation; laminate theory of orthotropic materials; strength properties. Prerequisites: CHE 3260, CHE 3265, MAE 3083.

MAE 5480 STRUCTURAL DYNAMICS (3 credits). Principles of dynamics applied to structural analysis, analysis of continuous media and discretized models, free vibration and forced response of structures, modal analysis, energy methods and approximate methods, applications in structural design and experimentation.

MAE 5610 ADVANCED DYNAMICS (3 credits). Newtonian and analytical mechanics; rigid-body dynamics, Euler's equations and spinning bodies; Lagrange's equations, Routhian and Hamiltonian mechanics, canonical transformations and Hamilton-Jacobi theory; dissipative, gyroscopic and circulatory systems; applications of numerical methods to complex dynamics problems. Prerequisites: MAE 2082.

MAE 5630 MODELING AND SIMULATION OF DYNAMIC SYSTEMS (3 credits). A study of theoretical, experimental and computer methods for characterizing dynamic behavior of various physical systems, including generalized approaches to modeling complex interactions between mechanicputer(tions and H8w[monol9nYNAM

MGT 5024 PRODUCTION AND OPERATIONS MANAGEMENT (3 credits). The translation of product and service requirements into facilities, procedures and operating organizations. Topics include product design, production alternatives, facilities location and layout, resource requirements planning and quality control.

MGT 5026 COMPUTER APPLICATIONS FOR BUSINESS (3 credits). Emphasizes a hands-on approach to solving business applications using computer applications. Includes discussion of the most recent developments in computer hardware, software, programming techniques, computer ethics and security. Noncredit for graduate management programs except to meet foundation requirements.

MGT 5031 SEMINAR IN INTERNATIONAL MANAGEMENT (3 credits). Focuses on the problems of the senior executive in the management of the multinational firm. Executive decision making is examined within the scope of international concerns relative to various economic, political and cultural environment.

MGT 5033 HUMAN RESOURCES MANAGEMENT (3 credits). Issues surrounding the employment of human resources in various organizational settings are explored using lectures/guided discussions and case study examples. Issues may include: recruitment/selection, job analyses/evaluation, equal employment opportunity, training/development, compensation/benefits, appraisal, labor relations, health and safety, and separation/retirement.

MGT 5034 LAW, TECHNOLOGY AND SOCIETY (3 credits). A critical examination of the impact of technology on the legal system and social organization, origin and methodology of the common law. Provides a framework for analyzing social change caused by advancing technology. Legal concepts are analyzed from the standpoint of societal reaction to technology. The case study method is a part of this course.

MGT 5035 PUBLIC ADMINISTRATION AND MANAGEMENT (3 credits). Focuses on the problems of administrative management in public agencies and presents methods and strategies to remedy administrative management problems. Case studies will be used to apply principles of effective public administrative management.

MGT 5037 GLOBAL ECONOMIC ENVIRONMENT OF BUSINESS (3 credits). Focus on the importance and impact of foreign trade for the world economies. Particular emphasis is placed on balance of trade, technology transfer and service economies, along with trade barriers, GATT, NAFTA, the World Bank and other issues related to global trade. Prerequisites: MGT 5149.

MGT 5039 ECONOMETRICS (3 credits). Construction of econometric models with application in business and economic analyses. Topics include single equation regression models, autoregressive and distributed-lag models, dummy variables, simultaneous-equation models and methods. Problems and remedies for violations of classical model assumptions. Prerequisites: MGT 5007, MGT 5132, MGT 5133.

MGT 5040 PUBLIC PROGRAM POLICY AND EVALUATION (3 credits). Techniques for evaluating the effectiveness of public programs will be used to asses effectiveness, efficiency, responsiveness, equity and trade-offs of public programs. Various evaluation techniques and methods will be applied to public programs in the federal, state and local government agencies.

MGT 5041 FEDERAL INCOME TAX (3 credits). Designed to cover Federal Income Taxes for individuals, corporations and partnerships. Includes procedure and administration of Federal Tax Law, as well as Federal Tax Research. Prerequisites: MGT 5000.

MGT 5042 INTERNATIONAL BUSINESS (3 credits). Addresses world environments and specific international business activities such as foreign investment and international marketing. The decision-making process for going abroad is examined along with current issues in inter-

MGT 5049 INTERNATIONAL MARKETING (3 credits). Formulation of marketing strategies and techniques are studied within the framework of the world marketplace. Fundamental marketing concepts are examined and adapted to various economic, cultural, political, legal and business environments. Prerequisites: MGT 5000, MGT 5019.

MGT 5050 ADVANCED INTERNATIONAL MARKETING (3 credits). The environment of international marketing and the need for organization marketing on a global basis to investigate the various economic, social, political, cultural and legal dimensions of marketing concepts. Includes emerging issues that create new problems and opportunities for international marketing managers. Prerequisites: MGT 5019.

MGT 5060 MANAGEMENT OF ASSETS (3 credits). Determination of requirements for management of major and secondary items. Needs and techniques for accurate asset reporting and analysis of demand data for customers' requirements are reviewed. Emphasis on problems related to unstable items and management methods required to integrate asset acquisition and management into the life cycle program.

MGT 5061 SYSTEMS AND LOGISTICS SUPPORT MANAGEMENT (3 credits). Addresses the management of evolving systems. Emphasis is placed on the planning and support requirements of the system during its life cycle. Includes maintenance planning, physical distribution, manpower requirements, facilities and equipment needs, documentation, systems integration and other support requirements.

MGT 5062 LOGISTICS POLICY (3 credits). Analyzes logistics as a science and provides a comparative analysis of different policy considerations. The role of logistics in organizational policy and problems is reviewed, and future trends in logistics are studied.

MGT 5063 INVENTORY CONTROL AND MANAGEMENT (3 credits). Management techniques and methods related to the life cycle management of material. Material management systems and concepts of standardization, modernization, material reserve, cataloguing, proordering, storage and distribution are addressed.

MGT 5064 COST AND ECONOMIC ANALYSIS (3 credits). Cost effectiveness, trade-off analysis, system effectiveness model structure, criteria for evaluation of alternative systems, principles of cost accounting and cost estimating for system life cycle. Basic math for cost-effective analysis. Computer tools for economic modeling and risk assessment. Prerequisites: MGT 5002, MGT 5006, MGT 5026.

MGT 5065 SUPPLY CHAIN MANAGEMENT (3 credits). A total systems approach to managing activities involved in physically moving raw materials, inventory and finished goods from point of orgin to point of use or consumption. The course is designed for a general audience of managers in engineering, purchasing,operations, logistics, information systems and sales functions across a range of industries, to provide insight into the conceptual foundations of SCM.

MGT 5066 SYSTEMS ANALYSIS AND MODELING (3 credits). Application of case analysis and modeling tools in a business environment. Systems analysis is discussed and computer models constructed. Includes system classification, problem formulation, decision/risk analysis, modeling techniques, discrete event simulation and evaluation of information. Design project required. Prerequisites: MGT 5006.

MGT 5067 SYSTEM MANAGEMENT (3 credits). Systems science and general system theory, strategic concepts, analytical tools, general systems approach, process management; systematic decision-making, problem-solving concepts, scientific and technical disciplines, communications theory, socio-environmental factors, interface and strategic management.

MGT 5068 SYSTEM ENGINEERING MANAGEMENT (3 credits). System technical management concepts and methods as applied to the management of system engineering activities. The general principles and requirements of system engineering and application of system management techniques to manage multidiscipline technical teams engaged in development programs. Prerequisites: MGT 5067.

MGT 5069 ADVANCED TECHNIQUES IN SUPPLY CHANGE MANAGEMENT (3 credits). The advanced theory and practice of the core functions of the enterprise and current information technologies used to understand SCM operational and logistic support areas. New logistic technologies, tools and application IT systems are explored, including use of the Internet and its replacement of traditional supply chain models. Prerequisites: MGT 5065.

MGT 5070 SPECIAL TOPICS IN BUSINESS (3 credits). Independent study in some area of business that allows the student to work closely with a faculty member and probe a subject within the business discipline in greater depth than is normally possible in a regular class. A comprehensive term paper is required.

MGT 5071 DECISION THEORY (3 credits). An examination of both the normative and empirical dimensions of judgment analysis. It introduces the use of management science techniques and mathematical modeling as a methodology for understanding and facilitating the decision-making process. Prerequisites: MGT 5006.

MGT 5079 TRAFFIC MANAGEMENT (3 credits). Examines the various means of directing, controlling and supervising functions involved in furnishing transportation services and facilities. Service support to the customer and the principles and problems involved therein are examined in detail.

MGT 5084 MATERIEL ACQUISITION MANAGEMENT (3 credits). Examines the life cycle process involving the acquisition of materiel and materiel systems. The concept of systems3(ed.)]TJ0smTscirj11c5R buc10(anse suppo)20(olving gment a1(oc5-1.1

MGT 5141 IMPLEMENTING STATISTICAL PROCESS CONTROL (3 credits). Implementation of an overall SPC program, with emphasis on how to manage a process throughout the entire organization with the aid of tools and methods for the improvement of quality. Includes how to target processes for SPC, conduct process capability studies and maintain ongoing process control. Prerequisites: MGT 5006.

MGT 5142 BUSINESS, GOVERNMENT AND PUBLIC POLICY (3 credits). Legal basis of the relationship of business and government, dimensions of federal regulation of business through Congressional action, administrative oversight by executive department agencies, regulatory power of independent agencies (Federal Reserve, SEC and FTC) and importance of political action committees in the influencing of public policy.

MGT 5145 TECHNOLOGY AND BUSINESS STRATEGY (3 credits). Focuses on the process of developing a technology strategy and integrating it with business strategy. Involves technology situation analysis, technology portfolio development, technology and corporate strategy integration and establishing technology investment priorities. Extensive use is made of actual case studies.

MGT 5146 MANAGEMENT OF INNOVATION (3 credits). Considers innovation in a historical context, organizing organizational culture and innovation, managing cross-functional teams, venturing and organization learning, intra- and entrepreneurship, managing R&D resources, executive leadership and the management of innovation and change, and designing innovative organizations. Prerequisites: MGT 5013.

MGT 5147 MANAGEMENT OF TECHNOLOGY RESEARCH SEMINAR (3 credits). An overview of past and current MOT research. Systematically explores adaptation of scientific methodology to the analysis and solution of technology management problems. Students will be required to develop a written proposal and conduct a formal oral defense.

MGT 5148 DESIGN AND ANALYSIS OF EXPERIMENTS (3 credits). Productivity measurement and improvement and quantitative methods used in the management of technology. Includes analysis of means, multifactor analysis of variance, factorial experiments and orthogonal arrays, including personal computer software applications for the design and analysis of experiments. Prerequisites: MGT 5007.

MGT 5149 ECONOMICS FOR BUSINESS (3 credits). Advanced economics consisting of economic modeling and forecasting; economic efficiency and allocation of resources in product markets; and the public sector macroeconomics and open economy, foreign exchange and international trade. Prerequisites: MGT 5006, MGT 5022, MGT 5132.

MGT 5150 MANAGEMENT OF SOFTWARE SYSTEMS (3 credits). Designed to explore management's consideration of functional requirement specifications, design, development, implementation and maintenance of computer-based software systems that provide information technology related services to organizations. Prerequisites: MGT 5014.

MGT 5151 DATABASE SYSTEMS MANAGEMENT (3 credits). Designed to investigate how database management system techniques are used to design, develop, implement and maintain modern database applications in organizations. Prerequisites: MGT 5014.

MGT 5152 COMPUTER SYSTEMS ADMINISTRATION (3 credits). A chief information officer's multiple role in management of computer-based resources, both centralized and networked data center operations with wide-area networks and local-area networks; computer-based systems development/maintenance/security. Prerequisites: MGT 5014.

MGT 5153 TELECOMMUNICATIONS SYSTEMS MANAGEMENT (3 credits). Designed to explore both the legal and the technical operation environment of telecommunications in organizations. Organizational ramifications of government telecommunication laws, policies and deregulatory activities are assessed. Prerequisites: MGT 5014.

MGT 5154 ADVANCED MANAGEMENT INFORMATION SYSTEMS (3 credits). Designed to develop an understanding of the relationship between information technology and the strategic operational and functional areas of organizations in both global and domestic environments. Prerequisites: MGT 5014.

MGT 5160 INTRODUCTION TO eBUSINESS (3 credits). Introduces the concept of eBusiness and how it affects businesses, governments and people in general. The major building blocks of an eBusiness organizational system, such as marketing, information technology, product/services distribution and strategic policy/planning are identified. (Requirement: Undergraduate course in business fundamentals or marketing.)

integral for Laplace transform with complex argument; inverse Laplace transforms. Prerequisites: MTH 2001, MTH 2201.

MTH 5130 THEORY OF COMPLEX VARIABLES (3 credits). Topology of the complex plane, analytic functions, Cauchy's integral formula, Liouville's theorem, maximum modulus theorem, Taylor and Laurent series, singularities, residue theorem, analytic continuation, entire functions, infinite product representation and conformal mapping. Prerequisites: MTH 2201, MTH 4101.

MTH 5201 MATHEMATICAL METHODS IN SCIENCE AND ENGINEERING 1 (3 credits). Fourier series and their convergence properties; Sturm-Liouville eigenfunction expansion theory; Bessel and Legendre functions; solution of heat, wave and Laplace equations by separation of variables in Cartesian coordinates. Prerequisites: MTH 2001, MTH 2201.

MTH 5202 MATHEMATICAL METHODS IN SCIENCE AND ENGINEERING 2 (3 credits). Solution of heat, wave and Laplace equations by separation of variables in cylindrical and spherical coordinates. Associated Legendre functions, hypergeometric functions and spherical harmonics. Fourier tranforms and separation of variables for heat and wave equations on infinite intervals. Vector integral calculus. Prerequisites: MTH 5201.

MTH 5203 MATHEMATICAL METHODS IN SCIENCE AND ENGINEERING 3 (3 credits). General perturbation techniques for linear and nonlinear ordinary differential equations, boundary layer theory, WKB methods, multiple scale analysis, approximate methods of

MTH 5412 MATHEMATICAL STATISTICS 2 (3 credits). Introductory survey of the basic concepts of probability and statistics. Topics include sample spaces, random variables and distributions, moments, statistics, estimation, tests of hypotheses and regression analysis. Prerequisites: MTH 5411.

MTH 5420 THEORY OF STOCHASTIC PROCESSES (3 credits). Includes discrete- and continuous-time stochastic processes, point and counting processes and Poisson counting process; as well as compound Poisson process, nonstationary Poisson process, renewal theory, regenerative processes and Markov chains. Prerequisites: MTH 5411.

MTH 5425 THEORY OF STOCHASTIC SIGNALS (3 credits). A study of the Wiener process, stationary and weakly stationary processes, white noise processes, stochastic differential equations, spectral theory of stationary processes, linear filtering problems, Hilbert spaces, autoregressive processes and mean square error prediction. (Requirement: Instructor approval.)

MTH 5430 QUEUING THEORY (3 credits). Includes queuing processes: imbedded and continuous time parameter processes; Markov, semi-Markov and semi-regenerative processes; single-server and multiserver queues; and processes of servicing unreliable machines. Controlled stochastic models. Prerequisites: MTH 5411.

OPERATIONS RESEARCH

ORP 5001 DETERMINISTIC OPERATIONS RESEARCH MODELS (3 credits). An applied treatment of modeling, analysis and solution of deterministic operations research problems. Topics include model formulation, linear programming, network flow and transportation problems and algorithms, integer programming and dynamic programming. (Requirement: At least one upper-level undergraduate math course.)

ORP 5002 STOCHASTIC OPERATIONS RESEARCH MODELS (3 credits). An applied treatment of modeling, analysis and solution of probabilistic operations research problems. Topics chosen from decision analysis, game theory, inventory models, Markov chains, queuing theory, simulation, forecasting models. (Requirement: At least one upper-level under-

ORP 5040 QUALITY ASSURANCE (3 credits). Covers the principles and application of statistical quality control and statistical process control. (Requirement: Undergraduate statistics course.)

ORP 5041 RELIABILITY ANALYSIS (3 credits). Covers the principles of reliability analysis and assessment; reliability probability models; combinatorial and system reliability; and reliability estimation. (Requirement: Instructor approval or prerequisite course.) Prerequisites: MTH 5411.

ORP 5042 RELIABILITY, AVAILABILITY AND MAINTAINABILITY (3 credits). Discussion of maintainability concepts relating to system effectiveness and support-system design. Topics include basic mathematical concepts, design concepts and data analysis used in quantifying availability, maintainability and reliability as measures of operational readiness and system effectiveness. Prerequisites: ORP 5041.

ORP 5050 DISCRETE SYSTEM SIMULATION (3 credits). Covers the principles of building and using a discrete event simulation; construction and statistical testing of random variate generators; statistical analysis and validation of results; design of sueFplication odoD0.223 ysiatiupport-sys3b3Coedits(tion)TJsurthod552(0 0)9(eqc)-5ement: 6

SPC 5009 SPACE STRUCTURES AND MATERIALS (3 credits). Design of structures of adequate strength and stability with little weight margin. Tension, torsion, compound stresses, simple and composite beams, thin- and thick-walled cylinders and buckling. Properties of space-qualified materials, deterioration, damage, outgassing, oxidation, radiation resistance. Prerequisites: SPC 5001.

SPC 5010 SPACECRAFT GUIDANCE, NAVIGATION AND CONTROL (3 credits). The principles and practice of electronic, inertial and stellar navigation, onboard and ground-controlled; attitude control methods and systems; and orbital guidance technology and systems. Prerequisites: SPC 5001.

SPC 5011 HUMAN SPACE SYSTEMS (3 credits). The role of astronauts in space. Astronaut and cosmonaut achievements in space research, extravehicular activity, long-duration space flight and lunar exploration. The space shuttle, space stations, future space habitats, lunar bases and expansion into heliocentric space. Prerequisites: SPC 5001.

SPC 5012 SPACECRAFT ENVIRONMENT (3 credits). The pre- and post-launch interactions between a space vehicle and its environment, including atmospheric density and compositon; gravity and free-fall; mechanical, thermal electronmagnetic field and energetic particle stresses; space debris impacts; and conducting space tether applictions.

SPC 5013 SPACE SYSTEMS ASTRODYNAMICS (3 credits). Topics include two- and three-

SPS 4110 SENIOR LABORATORY 2 (2 credits). Students conduct experiments in optics, atomic structure, nuclear and solid state physics that are basic to observations in space sciences. Restrictions: Must be enrolled in one of the following major(s): Physics/Space Sciences/ Physics, Preprofessional/Astronomy/Astrophysics.

SPS 4200 SENIOR SEMINAR 1 (1 credits). This seminar includes reports and discussions on selected topics in contemporary, experimental and theoretical physics and space sciences. (Requirement: Must be within three semesters of graduation.)

SPS 4201 SPECIAL TOPICS IN SPACE SCIENCES (3 credits). Specific problems of space sciences are studied. (Requirement: Department head approval.)

SPS 4210 SENIOR SEMINAR 2 (1 credits). This seminar includes reports and discussions on selected topics in contemporary, experimental and theoretical physics and space sciences. (Requirement: Must be within three semesters of graduation.) Prerequisites: SPS 4200.

SPS 4301 INDEPENDENT STUDIES (3 credits). Individual study of specific problems in space sciences. (Requirement: Department head approval.)

SPS 4400 SPACE LAUNCH SYSTEMS (3 credits). The assembly, preparation and checkout for launch of several space-launch systems built by

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SPS 5031 PLANETARY SCIENCE 2: ATMOSPHERES (3 credits). Principles governing the evolution, composition and retention of planetary atmospheres and the interplanetary environment. Topics include the neutral atmosphere, photochemical processes, diffusion dynamics and planetary ionospheres and magnetospheres. Prerequisites: SPS 4030.

SPS 5050 ASTRODYNAMICS (3 credits). Topics include the gravitational force, circular restricted three-body problem, many-bodies problem, perturbation theory, rocket dynamics, transfer orbits, motion of an artificial satellite and interplanetary trajectories. Prerequisites: SPS 3030.

SPS 5088 SPECIAL TOPICS IN SPACE SCIENCES (3 credits). Investigation of specific problems in the space sciences. (Requirement: Department head approval.)

SPS 5089 SPECIAL TOPICS IN SPACE SCIENCES (3 credits). Investigation of specific problems in the space sciences. (Requirement: Department head approval.) Prerequisites: SPS 5088.

SPS 5090 SPECIAL TOPICS IN OBSERVATIONAL ASTRONOMY 1 (3 credits). Participation in advanced observing programs at the university's observatories. (Requirement: Department head approval.)

SPS 5091 SPECIAL TOPICS IN OBSERVATIONAL ASTRONOMY 2 (3 credits). Participation in advanced observing programs at the university's observatories. (Requirement: Department head approval.) Prerequisites: SPS 5090.

SPS 5999 THESIS (0-6 credits). Individual work under the direction of a member or members of the graduate faculty on a selected topic in space sciences. (Requirement: Department head approval.)

SOFTWARE ENGINEERING

SWE 5001 SOFTWARE ENGINEERING 1 (3 credits). The application of engineering rigor to all phases of the software development life cycle; requirements elicitation and analysis, software architecture, software design and construction, software integration and test, and software maintenance. Students work individually to develop a software system from an initial problem statement through release of the completed product. Prerequisites: CSE 2010, MTH 2051.

SWE 5002 SOFTWARE ENGINEERING 2 (3 credits). The application of engineering rigor and team coordination to develop a software product. Provided with an initial problem statement, teams create and document their own disciplined procedures for each phase of the software development life cycle, then develop the software according to their own documented processes and finally provide in-depth critiques of the processes they followed. Prerequisites: SWE 5001.

SWE 5110 REQUIREMENTS ENGINEERING (3 credits). Provides an in-depth study of software requirements, engineering tools and techniques. Includes gathering user requirements, formal specification of system behavior, system interfaces, end-user and system documentation and validation techniques. The end-user aspect of gathering and formalizing or user requirements is emphasized. Prerequisites: SWE 5001.

SWE 5310 INTERFACE DEVELOPMENT (3 credits). Focuses on a specific class of software for which special engineering consideration must be given: software interfaces. The four major categories to be explored (human interfaces, file/database interfaces, APIs and real-time interfaces) and techniques to read from and write to these interfaces are given. Prerequisites: SWE 5001.

SWE 5320 WINDOWS SYSTEMS PROGRAMMING (3 credits). Focuses on programming for Windows 32- and 64-bit operating systems. Windows handling of processes, threads and memory management with emphasis on writing programs to optimally use these resources. Use of and programming for UNICODE, dynamic link libraries and the WIN32 API. Students write substantial programs in Visual C++.

SWE 5411 SOFTWARE TESING 1 (3 credits). Explores functional (black box) methods for testing software systems, reporting problems effectively and planning testing projects. Students apply what they have learned throughout the course to a sample application that is commercially available or under development. The choice of sample application changes from term to term. Prerequisites: CSE 2410 or SWE 5001, and MTH 2051, MTH 2401.

SWE 5415 SOFTWARE TESTING 2 (3 credits). Explores structural (glass box) methods for testing software. Testing of variables in simultaneous and sequential combinations, application programmer interfaces, protocols, design by contract, coverage analysis, testability, diagnostics, asserts and other methods to expose errors, regression test frameworks, test-first programming. Prerequisites: CSE 2410 or SWE 5001.

SWE 5430 SOFTWARE TESTING TOOLS (3 credits). This project-oriented course requires students to perform a survey of existing testing tools and to test a featured software product. Students are responsible for assessing functionality of testing tools and working with tool vendors to acquire and deploy a number of tools to test a real software application.

SWE 5440 INTRODUCTION TO SOFTWARE ARCHITECTURE (3 credits). Presents the role of software architecture in the software engineering life cycle. Covers techniques for design to meet functional requirements; analysis with respect to desired attributes such as performance, reliablity and maintainability; and

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Graduate Centers