**Industrial & Systems Engineering**
master’s degree programs offered through UF EDGE

**What is the University of Florida EDGE Program?**
EDGE enables engineering professional, military members, and students worldwide to participate in courses, certificates, and degree programs from the UF College of Engineering. Engineers can earn a master’s degree at a time and place convenient to them through programs from UF EDGE. As an EDGE student, you view the same course lectures, complete the same assignments and exams as UF campus based engineering students. Since admissions, lecture materials, and assignments are the same for UF EDGE students and campus students, you will earn the same academic credentials participating as a distance student as you would participating on campus, there is no distinction between UF transcripts of online (EDGE) and campus students.

**Learn Anywhere, Anytime**
UF EDGE brings this exciting learning experience to a worldwide audience of place-bound engineers through a variety of distance learning technologies accessible at the workplace, home and other sites.

EDGE courses are delivered as streaming and downloadable video formats. These are the same courses taught by University of Florida College of Engineering faculty on campus, taught in EDGE studio classrooms. Courses are supplemented by additional online course materials and interaction.

No campus visits or travel are required for EDGE participation. Degree programs can be completed in as little as 24 months. Distance master’s degree program students can take as many courses each semester as their jobs and family schedules permit (as long as master’s degrees are completed within the UF graduate school time limit, currently 7 years). The EDGE Program can work with companies or the military that support direct payment of tuition for employees.

UF EDGE brings the classroom to you with online, worldwide course delivery!

**The Study of Systems**
Systems Engineering takes on many definitions. In its broadest sense, it encompasses the analysis, design, implementation, optimization, and certification of any system. A systems engineer requires technical skills to understand the complexity of a system, application skills to address problems in his or her area of specialization, and managerial skills to integrate input from various engineering disciplines. This program develops the required skills while allowing the student to further explore a desired area of application through various tracks, from communication and information systems to logistics and manufacturing systems.

*I have been extremely fortunate to have found an engineering graduate program of such quality that is as flexible as UF EDGE. Classes are posted on the internet the same day they are recorded on campus, which allows off-campus students the opportunity to stay current with the class. As long as there is an internet connection available, I have been able to keep up with the class. I continue to be impressed with the quality of education I am receiving at UF. Academically, I have been challenged to stretch my engineering application past undergraduate expectations. I would strongly recommend this program to any working professional interested in pursuing a graduate degree in engineering.* - Tim Hunter

www.ufedge.ufl.edu
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Industrial & Systems Engineering Degree Program Admission
Master’s degree program admission for the Systems Engineering master’s degree is coordinated by the Industrial & Systems Engineering Department.

For additional information, contact:
Academic Coordinator
352.392.1464 ext. 2026
academic@ise.ufl.edu

Applicants should have:
- A bachelor of science degree in an engineering discipline with a cumulative undergraduate GPA of at least 3.0 on a 4.0 scale
- Satisfactory scores on the general portion of the Graduate Record Examination
- (GRE): a minimum score of 600 on the quantitative, 400 on the verbal, and 3.5 on the analytical portion is typically expected.
- For international students whose first language is not English, a minimum score on the Test of English as a Foreign Language (TOEFL) of 550 (paper), 213 (computer), or 80 (web) is required to be excused from English language course requirements.

Curriculum for the Master of Science Degree in Industrial and Systems Engineering
Master’s degree programs offered through UF EDGE are non-thesis. A non-thesis master’s degree for the Systems Engineering program requires the completion of 31 credit hours of course work as outlined in the degree curriculum. A minimum cumulative GPA of 3.0 is required for graduation.

***A “project” course must be taken within six months of graduation. (This means that a student graduating in the spring must take a project course either in the preceding fall or current spring semester. A student graduating in the fall must take a project course either in the preceding summer session or current fall session) Consult the Industrial & Systems Engineering Department for a list of acceptable EDGE offered “project” courses.***

The Master’s Degree in Industrial and Systems Engineering consists of a required core of 16 credit hours and a collection of electives of at least 15 credit hours. The core courses will be offered annually in the specified semester. The allowable electives have been grouped into different tracks; however, each student is free to choose electives from different tracks. The availability of these electives through UF EDGE is subject to change.

Systems Engineering Core (all students take these five core systems courses)

ESI 6314 Deterministic Methods in Operations Research (4 credits)
(Prereq: calculus through differential equations, knowledge of linear algebra, and experience using computers.)
Introduction to basic models and their solution with modern computer packages. Emphasis on modeling, computer solution, and sensitivity analysis with minimal reference to model theory and development of algorithmic methods.

ESI 6321 Applied Probability Methods in Engineering (3 credits)
(Prereq: calculus, differential equations, undergraduate probability, and statistics.)
Applied probability theory and statistics, reliability engineering, quality control, robust design, forecasting, Markov processes, and queueing theory.
ESI 6552 Systems Architecture (3 credits)
(Prereq: calculus and linear algebra.)
Foundations for developing and evaluating architectures for systems of systems. Process for generating functional, physical, and operational architecture from a top-level operations concept.

ESI 6553 Systems Design (3 credits)
(Prereq: calculus, linear algebra, basics of statistics.)
Broad introduction to systems engineering and the structured approaches needed to design complex systems. Emphasizes formulation of systems problems and approaches to their solution. Introduces basic mathematical techniques for dealing with systems design.

ESI 6555 Systems Management (3 credits)
(Prereq: calculus, linear algebra and basics of statistics.)
Introduction to the concepts of systems and the role of systems engineering in their development. Basic framework for planning and assessing system development, and how systems analysis methods and techniques are integrated into systems engineering processes.

Systems Engineering Electives
(students choose 15 credit hours (5 courses) of electives from any of the five tracks below, elective courses can be combined from multiple tracks or other UF EDGE courses, just form a ‘program of study’ with your academic advisor to tune the degree program towards your career)

Logistics and Transportation Systems Engineering Track Elective Choices
EIN 6529 Digital Simulation Techniques (3 credits)
ESI 6323 Models for Supply Chain Management (3 credits)
EIN 6336 Advanced Production and Inventory Control (3 credits)
ESI 6546 Stochastic Modeling and Analysis (3 credits)
CGN 6905 Traffic Flow Theory (3 credits)
CGN 6905 Engineering Project Management (3 credits)
EEL 6507 Queueing Theory and Data Communications (3 credits)
EGM 6341 Numerical Methods of Engineering Analysis I (3 credits)
TTE 5256 Traffic Engineering (3 credits)
EIN 6357 Advanced Engineering Economy (3 credits)

Manufacturing Systems Engineering Track Elective Choices
EIN 6529 Digital Simulation Techniques (3 credits)
ESI 6323 Models for Supply Chain Management (3 credits)
EIN 6336 Advanced Production and Inventory Control (3 credits)
EIN 6367 Facilities Layout and Location (3 credits)
EIN 6392 Manufacturing Management (3 credits)
ESI 6470 Principles of Manufacturing Systems Engineering (3 credits)
EML 5318 Computer Control of Machines and Processes (3 credits)
EML 6324 Fundamentals of Production Engineering (3 credits)
EIN 6357 Advanced Engineering Economy (3 credits)

Information Systems Engineering Track Elective Choices
EIN 6357 Advanced Engineering Economy (3 credits)
CDA 5155 Computer Architecture Principles (3 credits)
CEN 5035 Software Engineering (3 credits)
CEN 6070 Software Testing and Verification (3 credits)
COP 5536 Advanced Data Structures (3 credits)
COP 5725 Database Management Systems (3 credits)
COT 5405 Analysis of Algorithms (3 credits)
Communications Systems Engineering Track Elective Choices
EIN 6357 Advanced Engineering Economy (3 credits)
EEL 5544 Noise in Linear Systems (3 credits)
EEL 5718 Computer Communications (3 credits)
EEL 6507 Queuing Theory and Data Communications (3 credits)
EEL 6509 Wireless Communication (3 credits)
EEL 6535 Digital Communications (3 credits)
EEL 6591 Wireless Networks (3 credits)
EEL 6825 Pattern Recognition and Intelligent Systems (3 credits)

Environmental Systems Engineering Track Elective Choices
EIN 6357 Advanced Engineering Economy (3 credits)
EES 5305 Ecological & General Systems (3 credits)
EES 6932 Wetland Treatment Systems (3 credits)
EES 6932 Spring Systems (3 credits)
EES 6051 Advanced Environmental Planning and Design (3 credits)
ENV 6441 Water Resources Planning and Management (3 credits)
ENV 6932 Advanced Environmental Resources Management (3 credits)
ENV 6932 Stormwater Systems Design (3 credits)

The University of Florida EDGE (Electronic Delivery of Gator Engineering) program provides online delivery of graduate engineering courses to a worldwide audience of distance learning professionals. We enable working engineers to continue their education while maintaining their current career and family obligations.

UF EDGE™ offers the same high-quality University of Florida engineering courses to both on-campus and distance learning graduate students, providing same-day availability to distance-learning students in downloadable, streaming video and mobile device formats. Lectures are available online all semester making it easy for students to go back and review material before exams. Distance learning students submit coursework online and interact with professors and TAs using email, phone and course websites; students are never required to travel to campus. Exams are proctored at their place of work and are emailed or faxed in for grading.

Want to begin now, but the degree admission date has passed for next semester?
Qualified students can begin classes by registering as a ‘non-degree’ student for your first semester to start faster. If you meet admission criteria for the master’s degree program and earn a B or better in your non-degree status courses, you can transfer them in to count towards your degree program. Consult your departmental graduate advisor about procedures to ensure you take correct non-degree status courses, and for transferring non-degree credits earned to a master’s degree program.
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Sample Program of Study for:
Master of Science Degree in Systems Engineering
completed through the EDGE Program
(Communications Systems Track)

10 courses; 31 credits for master’s degree; non-thesis, no campus visits required

(Note: this is just a typical sample program of study, course substitutions can be made to tune the degree program to your education and career goals by making a ‘program of study’ with an academic advisor, there is flexibility and room to substitute a few electives for other EDGE courses)

1) ESI 6314 Deterministic Methods in Operations Research (4 credits)
2) ESI 6321 Applied Probability Methods in Engineering (3 credits)
3) ESI 6552 Systems Architecture (3 credits)
4) ESI 6553 Systems Design (3 credits)
5) ESI 6555 Systems Engineering Management (3 credits)
6) EEL 5718 Computer Communications (3 credits)
7) EEL 6507 Queuing Theory and Data Communications (3 credits)
8) EEL 6509 Wireless Communication (3 credits)
9) EEL 6535 Digital Communications (3 credits)
10) EEL 6591 Wireless Networks (3 credits)

Want to earn a specialty certificate while working on your master’s degree?
There is room to substitute out elective courses from other UF EDGE offerings, if you want to earn a three course EDGE specialty certificate (http://www.ufedge.ufl.edu/programs/certificates.php) while working on your master’s degree. To do this you would work with your academic advisor to plan your ‘program of study’ of 10 total courses to count simultaneously for both a master’s degree and certificate!

Who do I contact with questions?
For general questions about the University of Florida EDGE Program, how EDGE works, what to expect as an EDGE student, how distance exam proctoring works, non-degree status to begin soon, etc. Contact the UF EDGE office directly:

Pamela Simon
UF EDGE Student Assistance & Registration
e-mail: phs@ufl.edu
phone: 352-392-9670
www.ufedge.ufl.edu

For questions about the UF Industrial & Systems Engineering (ISE) Curriculum, how to apply for admission to the master’s degree program in the ISE Department, contact the ISE department directly at:

ISE Academic Coordinator
352.392.1464 ext. 2026
academic@ise.ufl.edu

www.ufedge.ufl.edu