Graduate Degrees: Prior to 2013 – 14
Academic Catalog

MSIE - BSIE Required
MSIE - Other Engineering Degrees ONLY
Master of Science in Engineering Management (MSEM)
Master of Science (MS)
Ph.D. in Industrial Engineering

MS Focus Areas
- Human Systems Engineering / Ergonomics
- Systems Operations and Modeling
- Quality Systems Engineering
- Interactive Simulation and Training Systems
- Systems Engineering
Graduate Degrees

- Master of Science in Engineering Management (MSIE)
- Master of Science in Engineering Management (MSEM)
- Master of Science (MS)
- Ph.D. in Industrial Engineering
Graduate Degrees

Course Offering Areas

- Human Systems Engineering / Ergonomics
- Systems Operations and Modeling
- Quality Systems Engineering
- Interactive Simulation and Training Systems
- Systems Engineering
Human Systems
Engineering/Ergonomics Courses

• EIN 5248C Ergonomics (3 credit hours)
• EIN 5251 Usability Engineering (3 credit hours)
• EIN 6270C Work Physiology (3 credit hours)
• EIN 6258 Human-Computer Interaction (3 credit hours)
• EIN 6279C Biomechanics (3 credit hours)
• EIN 6935 Advanced Ergonomics Topics (3 credit hours)
• EIN 6271 Human Reliability (3 credit hours)
Quality and Production Systems Courses

- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- EIN 5388 Forecasting (3 credit hours)
- EIN 6336 Production and Inventory Control (3 credit hours)
- EIN 6425 Scheduling and Sequencing (3 credit hours)
- EIN 5356 Cost Engineering (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
Management Systems Courses

• EIN 6182 Engineering Management (3 credit hours)
• EIN 5117 Management Information Systems I (3 credit hours)
• EIN 6370 Innovation in Engineering Design (3 credit hours)
• EIN 6339 Operations Engineering (3 credit hours)
• EIN 5108 The Environment of Technical Organizations (3 credit hours)
Simulation, Optimization and Modeling Courses

- ESI 6336 Queuing Systems (3 credit hours)
- ESI 5306 Operations Research (3 credit hours)
- ESI 6418 Linear Programming and Extensions (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- EIN 5255C Interactive Simulation (3 credit hours)
- EIN 6528 Simulation Based Life Cycle Engineering (3 credit hours)
- EIN 6645 Real-Time Simulation Agents (3 credit hours)
- EIN 6936 Seminar in Advanced Industrial Engineering (3 credit hours)
- ESI 5419C Engineering Applications of Linear and Nonlinear Optimization (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6529 Advanced Systems Simulation (3 credit hours)
- ESI 6921 Seminar in Advanced Operations Research (3 credit hours)
Systems Engineering Courses

- ESI 6358 Decision Analysis (3 credit hours)
- ESI 5359 Risk Assessment and Management (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- EIN 5346 Engineering Logistics (3 credit hours)
- ESI 6891 IEMS Research Methods (3 credit hours)
Our Expectations

• Must have good foundation

• Ability to
  – Conduct independent research
  – Read and understand the field’s literature
  – Contribute to the field and expand knowledge
  – Write research proposals
  – Collaborate with researchers from other disciplines
  – Teach and educate/train students and colleagues

• Intense desire to discover new things
  – Life-long learning
Admission Requirements

- Masters degree in IE or a closely-related discipline
- TOEFL - - if applicable!
- Competitive GRE scores of at least 1000 (verbal + Qualitative)
- An official PPI (Personal Potential Index) reports must be submitted directly to the UCF College of Graduate Studies (use UCF Institution Code: 5233)
Ph.D. Program Requirements

• A minimum of 72 semester credit hours beyond baccalaureate degree
• At least 36 credit hours must be in 6000-level or 7000-level courses, including the allowed number of research and dissertation hours
• Only graduate-level credit with a grade of "C-" or higher may be used to satisfy degree requirements
• At least 27 hours of formal course work exclusive of Independent Study (EIN 6908). These include: Standard Courses, Face-to-Face, Web-based, or Media-Enhanced
• At least 15 hours of dissertation credits
Academic Integrity Training

• All students newly admitted to doctoral programs must complete training designed to inculcate an awareness and understanding of the fundamental issues of academic integrity and the responsible conduct of research (RCR) in a manner that is consistent with federal regulations

• This required training includes:
  1. Online Collaborative Institutional Training Initiative (CITI) and
  2. Four face-to-face ethics/RCR workshops

• All academic integrity/RCR training requirements must be completed prior to a student’s advancement to candidacy

• The CITI module should be completed by the end of a student’s second major (Fall/Spring) term of enrollment

• All academic integrity and RCR training requirements must be completed in a manner that is consistent with federal regulations

• A doctoral student who has not completed the required training in academic integrity and the responsible conduct of research will not be advanced to candidacy.
Ph.D. Degree Details

Ph.D. Pre-Requisites

• MS degree in IE or related discipline
• MUST have MS Core knowledge*

* Knowledge to be tested through Qualifying Examination (QE)
Ph.D. Degree Details

Ph.D.

Required Courses
6 - 18 Courses

- ESI6891 IEMS Research Methods
- ESI6247 Experimental Design and Taguchi Methods
Ph.D. Degree Details
Required Courses—6-18 Credit Hours

• Students who do not have an MSIE and/or have not taken the following four courses or accepted substitutes must take these qualifying core courses before they may take the Qualifying Examination.

  – ESI 5219 Engineering Statistics (3 credit hours)
  – EIN 5140 Project Engineering (3 credit hours)
  – EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
  – ESI 6551C Systems Engineering (3 credit hours)
Ph.D. Degree Details - Electives

Students select up to 7 unrestricted elective courses that will support their research interests, with the approval of their dissertation adviser and the graduate director.

Students may choose courses in any of the following group of courses*:
- Human Systems Engineering/Ergonomics
- Quality and Production Systems
- Management Systems
- Simulation, Optimization and Modeling
- Systems Engineering

* see list of courses in graduate catalog
Transfer of Credits

• Three different types of credit may be brought into a program of study for course work taken outside of UCF or prior to enrolling in the program for which the degree is sought.

• The total number of transfer credits may not exceed 50% of program requirements, except under two circumstances.

• Types of Credit Transfer:
  – External Transfer Credits
  – Internal Transfer Credits
  – Waived Credits
External Transfer Credits

- External transfer credits: course credits completed at a regionally accredited institution (excluding UCF) or recognized international institution.
- External transfer credits are eligible for transfer only if they meet the following criteria:
  - Only graduate-level courses may be accepted as transfer credits.
  - Only courses with a grade of "B-" or higher are allowed to be transferred into a program of study.
  - Only hours that are no more than seven years old at the time the degree is conferred may be transferred, unless part of an earned graduate degree.
  - Only formal course work hours, but not thesis or research hours, may be used as transfer credits.
  - External transfer credits are limited to up to 9 credit hours for students who do not have a completed graduate degree or for students in doctoral programs that require a master’s degree for admission.
Internal Transfer Credits

• Internal transfer credits may include:
  – up to nine hours of graduate-level course work taken by a student while in undergraduate status at UCF.
  – More than nine hours may be accepted if part of a formally approved accelerated program.
Waived Credits

• 30 credit hours in a program of study that are waived on the basis of an earned master’s degree, not based on individual courses.

  – the earned degree is from a regionally accredited institution or recognized foreign institution;
  – the master's degree was earned in the same or a closely related area of study
Summary of Transfer Credits

Waived credits from earned degree in the same or related discipline (internal or external) 30 SCH

Transfer credits from earned degree in the same or related discipline (internal or external) ≤ 30 SCH

Other external credits ≤ 9 SCH

Graduate-level credits while in UCF undergraduate status ≤ 9 SCH

Other internal transfer credits ≤ 15 SCH

*Exceptions:
  • Up to all of the hours taken to fulfill an earned UCF graduate certificate.

Sum may not exceed 50% of program requirements
Program Articulation

- May require specific graduate and undergraduate course work. May need for in preparation for the Qualifying Examination

- Graduate course work required for doctoral program
Work Skills

- Effective communications - Written and Oral

- Computer software
  - Word processing, spreadsheets, graphics, operations research, statistical analysis, Design of Experiments

- High level computer programming capability - C, C++, Visual BASIC, or JAVA
Academic Standards

• 3.0 minimum GPA at all times
  – POS GPA
  – Graduate GPA

• Academic Probation if overall GPA < 3.0
  – GPA must be ≥ 3.0 after 9 hours
  – If GPA remains < 3.0 after 9 hours - Dismissed and Petition for Re-admission

• Dismissal if overall GPA < 2.0
  – Petition for Re-entry with CRP (Conditional Retention Plan)

• No ‘C’ grades in Required Courses

• More than 6 hours of unsatisfactory grades (below B- or unresolved I grade) is reason for removal from graduate status
Academic Advisor

- Graduate Coordinator
  - Initial advisor for all students

- Other Faculty members

- Dissertation Committee Chair
  - Final advisor
Time Limitation

• Seven years from date of admission to complete degree requirements

• Four years from date of admission to candidacy

• No course (other than those that are part of an earned Masters degree) in program of study may be over seven (7) years old at time of graduation
Program of Study

- Is a contract with the University
- Complete during first 9 credit hours enrolled
- Identify transfer credits (if any)
- Identify substitution for required courses (if any)
- Selection of electives (approved by advisor)
  - Any IEMS courses
  - ME, CS, Math, Stat, Psychology, Business
  - Courses appropriate for area of study
Program of Study -- continued

How to fill out your POS?

1. Go to www.iems.ucf.edu
2. Click on “Admissions”
3. Click “Program of Study Templates” on the Graduate Studies section
4. Select the appropriate Program of Study
5. Review program requirements and course sequence (Five Year Schedule)
6. Fill it out
7. Print it, sign it, and have your advisor sign it
8. Submit to IEMS Graduate Office in 312
9. Modify as necessary after approval from Advisor to change courses if needed
Qualifying Examination (QE)

- Written exam that focuses in student’s mastery of specified content
- One day (8am - 5pm)
- Exam covers the following courses - these are our MS Core:
  - EIN 5140 Project Engineering
  - EIN 6357 Advance Engineering Economic Analysis
  - ESI 5219 Engineering Statistics
  - ESI 6551C Systems Engineering
- Fall and Spring Semesters
- Open book and open notes
- If unsuccessful, second examination possible upon recommendation of faculty, or specific portion retaken however, the entire test must be retaken
- Graduates from other MS programs may are encouraged to take these courses at UCF, unless they took similar courses covering the same subjects!
Candidacy Examination

- May be taken any time after successful completion of the qualifying examination, but not in the same semester.

- The objective of the candidacy examination is to determine if the student has the breadth and depth of knowledge required to conduct independent research in the proposed area.

- The candidacy examination include an oral presentation of a detailed dissertation proposal, which becomes the oral candidacy document and the written component of the candidacy examination is satisfied by the proposal document, which becomes the required candidacy document.
Candidacy Examination Objectives

• Demonstrate substantial mastery of general knowledge of field:
  – Theory, professional practice, bibliography, research methodology

• Determine if the student has the breadth and depth of knowledge required to conduct independent research in the proposed area

• Help student focus research topic and methods
Candidacy Examination - - continued

- Candidacy Examination is part of student’s permanent file

- Outcomes:
  - Pass
  - Capable but needs extra courses
  - Inadequate performance
Dissertation Steps

• Finding a topic

• Finding an Advisor and a Dissertation Committee

• Candidacy examination, including dissertation proposal

• Drafts and revisions - involvement of Committee

• Dissertation defense

• Deadlines
Dissertation Defense

• Oral examination on written dissertation

• Adequate review time for committee

• Thesis/Dissertation Editor for format

• Meet deadlines

• No surprises - keep committee involved and informed

University of Central Florida
Industrial Engineering and Management Systems
Graduation Requirements

• Must be registered in graduation term
• Intent to Graduate form - 1st week of class
• Overall GPA ≥ 3.0 in Program of Study
• No unresolved I grades
• All courses (not in MS degree) within past 7 years
Things to keep in mind

• You should begin your research before you complete all of your course work

• Your dissertation research must become a part of you; completing this degree requires a sincere commitment

• Applicants for university faculty positions are now expected to have published research papers before they graduate
Registration for Courses

• Must be completed no later than Deadline

• A doctoral program of study (POS) template may be found at http://iems.ucf.edu

• Observe prerequisites

• See Dr. Elshennawy if you have questions

• There can be charges for making schedule changes after deadline
Financial Assistance

• Limited opportunities for research assistantships
• Individual IEMS faculty research contracts
• Majority of positions to doctoral students
• Opportunities elsewhere at UCF
• Fellowships - long lead time
Miscellaneous

• **Readmission and Continuous Attendance**
  
  – Apply for readmission if not registered for two consecutive major semesters
  
  – File is reviewed to determine admission status
  
  – May lose option for original Program of Study

• **Dismissal from graduate program**
  
  – Unsatisfactory grades
  
  – Weak academic performance in major field of endeavor
  
  – Poor performance in required examinations (oral comprehensive, thesis defense)
  
  – Student in Doctoral Candidate status must continue to enroll for at least 3 semester hours
Golden Rule

Read **carefully** the policies and procedures in the Golden Rules at:

www.goldenrule.sdes.ucf.edu
Your Responsibilities

• It is your responsibility to keep informed of all rules, policies and procedures, and other requirements related to your graduate program
• File a timely program of study
• Observe and Meet all deadlines!
• File an on-line Intent to Graduate or a certificate completion form
• Complete Exit Surveys
Certificate Programs
• Applied Operations Research Graduate Certificate
• Design for Usability Graduate Certificate
• Industrial Ergonomics and Safety Graduate Certificate
• Project Engineering Graduate Certificate
• Quality Assurance Graduate Certificate
• Systems Engineering Graduate Certificate
• Systems Simulation for Engineers Graduate Certificate
• Training Simulation Graduate Certificate
Applied Operations Research Graduate Certificate

- **Required Courses—9 Credit Hours**
  - ESI 5219 Engineering Statistics (3 credit hours)
  - ESI 5306 Operations Research (3 credit hours)
  - ESI 5531 Discrete Systems Simulation (3 credit hours)

- **Elective Course—3 Credit Hours**
  - Choose one of the following three courses.
    - ESI 6336 Queuing Systems (3 credit hours)
    - ESI 6358 Decision Analysis (3 credit hours)
    - ESI 6418 Linear Programming and Extensions (3 credit hours)
Design for Usability Graduate Certificate

• **Required Courses—12 Credit Hours**

  – EIN 5248C Ergonomics (3 credit hours)
  – EIN 5251 Usability Engineering (3 credit hours)
  – EIN 6258 Human Computer Interaction (3 credit hours)
  – ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
Industrial Ergonomics and Safety Graduate Certificate

• Required Courses—15 Credit Hours

  – EIN 5248C Ergonomics (3 credit hours)
  – EIN 6215 System Safety Engineering and Management (3 credit hours)
  – Select two of the following courses:
    • EIN 6279C Biomechanics (3 credit hours)
    • EIN 6264C Industrial Hygiene (3 credit hours)
    • EIN 6270C Work Physiology (3 credit hours)
Project Engineering Graduate Certificate

- **Required Courses—9 Credit Hours**
  - EIN 5108 The Environment of Technical Organizations (3 credit hours)
  - EIN 5117 Management Information Systems I (3 credit hours)
  - EIN 5140 Project Engineering (3 credit hours)

- **Elective Course—3 Credit Hours**
  - Choose one of the following two courses.
    - EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
    - ESI 6358 Decision Analysis (3 credit hours)
Quality Assurance Graduate Certificate

• Required Courses—9 Credit Hours
  – ESI 5219 Engineering Statistics (3 credit hours)
  – ESI 5236 Reliability Engineering (3 credit hours)
  – ESI 6225 Quality Design and Control (3 credit hours)

• Elective Course—3 Credit Hours
  – Choose one of the following two courses.
    • ESI 5227 Total Quality Improvement (3 credit hours)
    • ESI 6224 Quality Management (3 credit hours)
Systems Engineering Graduate Certificate

• Required Courses—12 Credit Hours
  
  – ESI 5219 Engineering Statistics (3 credit hours)
  – ESI 5306 Operations Research (3 credit hours)
  – ESI 5531 Discrete Systems Simulation (3 credit hours)
  – ESI 6551C Systems Engineering (3 credit hours)
Systems Simulation for Engineers Graduate Certificate

• Required Courses—12 Credit Hours

  – ESI 5219 Engineering Statistics (3 credit hours)
  – ESI 5531 Discrete Systems Simulation (3 credit hours)
  – ESI 6217 Statistical Aspects of Digital Simulation
  – ESI 6532 Object-oriented Simulation (3 credit hours)
Training Simulation Graduate Certificate

• Required Courses—12 Credit Hours

  – EIN 5255C Interactive Simulation (3 credit hours)
  – EIN 6645 Real-Time Simulation Agents (3 credit hours)
  – EME 6613 Instructional System Design (3 credit hours)
Our objective is YOUR SUCCESS!

We are here to help YOU!
Questions?

Graduate Coordinator - -
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