

M.S. IN INDUSTRIAL ENGINEERING

Overview

The Master of Science degree in Industrial Engineering includes the following areas of emphasis:

1. Engineering Management
2. Ergonomics and Human Factors
3. Health Care Systems
4. Management of Technology
5. Manufacturing Engineering
6. Data Analytics
7. Operations Research
8. Productivity Engineering
9. Quality

Admission Requirements

1. Students (other than University of Miami graduates) applying for graduate admission to the College should submit three letters of recommendation from individuals familiar with the applicant's abilities and background. Students who hold a bachelor's degree in a field other than Industrial Engineering may be admitted to the graduate program and to candidacy upon completion of appropriate undergraduate deficiency courses, in addition to the regular requirements for the graduate degree. A student's overall program is planned by the student and the Graduate Advisor.
2. The Department of Industrial and Systems Engineering offers a 5-Year Bachelor of Science in Industrial Engineering and Master of Science in Industrial Engineering Program (BSIE/MSIE Program).
 - a. This program is specifically designed for those students who want to pursue their graduate study as soon as they complete their undergraduate study in Industrial Engineering.
 - b. The special conditions for this 5-Year BSIE/MSIE Program are as follows:
 - i. The student must declare his/her intent to participate before the end of their Junior year by submitting an official application to the department graduate committee for admission into the MSIE portion of the program. Exceptions to this rule must be approved by the department faculty.
 - ii. A student wishing to withdraw from the 5-Year Program without the MSIE degree must complete all the requirements for the BSIE program, including the ISE 694 Master's Capstone Design Project in order to get his/her BSIE degree.
 - iii. To qualify for the MSIE degree, the student must meet all the pertinent Graduate School requirements, including a minimum of 3.0 GPA.
 - iv. The student is awarded both the BSIE and MSIE degrees at the end of the fifth year when all requirements are satisfied.
 - c. More details can be found in the Undergraduate bulletin (<http://bulletin.miami.edu/undergraduate-academic-programs/engineering/industrial-engineering/>).

Curriculum Requirements

Requirements for the Master of Science Degree (both thesis and non-thesis option):

- An approved integrated program with a minimum of 30 credit hours with a 3.0 average or better on all credit hours attempted and no single grade below "C" at the University of Miami while a graduate student.
- At least 12 course credit hours must be at the 700 level.

MS in Industrial Engineering: Thesis Option

Code	Title	Credit Hours
5 Common Core Courses		
ISE 712	Design of Experiments	3
ISE 742	Linear Programming and Extensions	3
ISE 757	Ergonomics and Occupational Biomechanics	3
ISE 761 or ISE 763	Advanced Economics of Systems Project Management Techniques	3
ISE 765 or ISE 764	Advanced Production Systems Supply Chain Management	3
3 Elective Courses		9
Master's Thesis		

ISE 810	Master's Thesis	6
Total Credit Hours		30

MS in Industrial Engineering: Non-Thesis Option

Code	Title	Credit Hours
5 Common Core Courses		
ISE 712	Design of Experiments	3
ISE 742	Linear Programming and Extensions	3
ISE 757	Ergonomics and Occupational Biomechanics	3
ISE 761	Advanced Economics of Systems	3
or ISE 763	Project Management Techniques	
ISE 765	Advanced Production Systems	3
or ISE 764	Supply Chain Management	
4 Elective Courses		12
Master's Project		
ISE 794	Master's Project	3
Total Credit Hours		30

Notes:

- In addition to the above required courses, the student will have to take other graduate level elective courses to fulfill the degree requirements. A list of approved electives is maintained by the Graduate Advisor in the Department of Industrial and Systems Engineering. Substitution of courses is allowed, but must be approved by the Graduate Advisor and the Department Chairman.
- Students who do not have previously earned Industrial Engineering degrees must take ISE647 and ISE765.
- 600-level courses are open to advanced undergraduates and to graduate students; 700-level courses are open only to graduate students.
- 600-level and 700-level courses are also open to qualified graduate students majoring in other disciplines.

Sample Plan of Study: No-Thesis Option

Year One		
Fall		Credit Hours
ISE 607	Design of Manufacturing Systems	3
ISE 712	Design of Experiments	3
ISE 742	Linear Programming and Extensions	3
Credit Hours		9
Spring		
ISE 757	Ergonomics and Occupational Biomechanics	3
ISE 764	Supply Chain Management	3
ISE 765	Advanced Production Systems	3
Credit Hours		9
Year Two		
Fall		
ISE 616	Introduction to Applied Data Analytics	3
ISE 624	Systems Intelligence with Software Applications	3
ISE 763	Project Management Techniques	3
ISE 794	Master's Project	3
Credit Hours		12
Total Credit Hours		30

Mission

The Department of Industrial and Systems Engineering's mission is to provide contemporary and relevant industrial and systems engineering education and research; impart knowledge and skills necessary to design and to improve a variety of manufacturing and service processes; promote life-long learning; and contribute to emerging societal needs.

Student Learning Outcomes

- Graduates will demonstrate an advanced ability to design a system, component, or process to meet the desired business needs of the project.
- Students will gain an ability to write effectively about advanced topics in Industrial Engineering.
- Graduates will have an ability to present their findings effectively about advanced topics in Industrial Engineering.