Doctor of Philosophy in Industrial Engineering

About This Program

Doctor of Philosophy in Industrial Engineering (MS Entry) is designed for advanced graduate students who wish to advance their careers in research and development in industry, government, or academia.

A student's program will consist of coursework, independent study, and a dissertation in a field pertinent to the student's areas of interest. The program for each student will be planned by the student and a committee of faculty members.

Students with undergraduate degrees in fields other than engineering may be required to take necessary courses to establish a background in science, mathematics, and engineering.

Competencies

1. Upon completion, students will demonstrate a comprehensive mastery of the theoretical concepts in industrial engineering.
2. Upon completion, students will be able to use and develop techniques and tools in industrial engineering.
3. Upon completion, students will appreciate the need for ethical and professional behavior.
4. Upon completion, students will be able to work, communicate, and lead teams effectively.

Admissions Criteria

The doctoral program in Industrial Engineering is available to applicants that satisfy at least one of the following:

- A completed MS degree in Engineering or Science;
- U.S. citizenship or permanent residency with a completed a BS degree in Engineering from an ABET-accredited program.

UNCONDITIONAL ADMISSION

Unconditional admission may be granted if all of the following conditions are met.

- A GPA of at least 3.0 in the last 60 hours of undergraduate coursework.
- A GPA of at least 3.3 in all prior graduate coursework, if any.
- A minimum score of 155 on the GRE Quantitative section and a minimum score of 305 for the GRE Quantitative and Verbal sections combined.
- For applicants whose native language is not English: All students admitted in the program must meet the minimum university English language requirements as detailed in the general admission requirements section of the catalog.

Remedial course work may be required if an applicant does not have sufficient engineering or science background.

PROBATIONARY ADMISSION

Prospective students not meeting the conditions for unconditional admission may be granted probationary admission if their qualifications indicate a potential for success. Deficiency coursework may be required. Satisfying all deficiency requirements and maintaining a GPA of at least 3.0 in each of their first two semesters of graduate work may clear probationary status.

Curriculum

Foundations (Common Core)

IE 5301	INTRODUCTION TO OPERATIONS RESEARCH	3
IE 5304	ADVANCED ENGINEERING ECONOMY	3
IE 5318	APPLIED REGRESSION ANALYSIS	3
Breadth Courses		
Select at least 3 and up to 12 hours from IE Applications and at least 3 hours from any other category. At most 3 hours per category may be counted toward the Breadth Courses requirement.		15
IE Applications		
IE 5303	QUALITY SYSTEMS	
IE 5322	SIMULATION AND OPTIMIZATION	
IE 5329	PRODUCTION AND INVENTORY CONTROL SYSTEMS	
IE 5342	METRICS AND MEASUREMENT	
Manufacturing Systems and Logistics		
IE 5310	PRODUCTION SYSTEMS DESIGN	

IE 5312	PLANNING AND CONTROL OF ENTERPRISE SYSTEMS	
IE 5320	ENTERPRISE ENGINEERING METHODS	
IE 5321	ENTERPRISE ANALYSIS AND DESIGN	
IE 5330	AUTOMATION AND ADVANCED MANUFACTURING	
IE 5333	LOGISTICS TRANSPORTATION SYSTEMS DESIGN	
IE 5334	LOGISTICS DISTRIBUTION SYSTEMS DESIGN	
IE 5339	PRODUCT DESIGN, DEVELOPMENT, PRODUCIBILITY, AND RELIABILITY DESIGN	
IE 6302	FACILITIES PLANNING AND DESIGN	
IE 6310	INDUSTRIAL APPLICATIONS	
Human Factors		
IE 5314	SAFETY ENGINEERING	
IE 5326	INDUSTRIAL BIOMECHANICS	
IE 5331	INDUSTRIAL ERGONOMICS	
IE 5335	COGNITIVE SYSTEMS ENGINEERING	
IE 5338	HUMAN ENGINEERING AND COMPLEX SYSTEMS	
Advanced Analytics		
IE 5305	LINEAR OPTIMIZATION	
IE 5306	DYNAMIC OPTIMIZATION	
IE 5307	QUEUEING THEORY	
IE 5309	STOCHASTIC PROCESSES	
IE 5311	DECISION ANALYSIS	
IE 5319	ADVANCED STATISTICAL PROCESS CONTROL AND TIME SERIES ANALYSIS	
IE 5332	NONLINEAR PROGRAMMING	
IE 6303	COMBINATORIAL OPTIMIZATION	
IE 6308	DESIGN OF EXPERIMENTS	
IE 6309	RESPONSE SURFACE METHODOLOGY AND COMPUTER EXPERIMENTS	
IE 6318	DATA MINING & ANALYTICS	
Systems Engineering/Engineering Management		
IE 5345	MANAGEMENT OF KNOWLEDGE AND TECHNOLOGY	
IE 5346	TECHNOLOGY DEVELOPMENT AND DEPLOYMENT	
IE 5351	INTRODUCTION TO SYSTEMS ENGINEERING	
IE 5352	REQUIREMENTS ENGINEERING	
IE 5353	SYSTEMS ARCHITECTURE & DESIGN	
IE 5354	MANAGEMENT OF COMPLEX SYSTEMS	
IE 6305	ENGINEERING MANAGEMENT I	
IE 6306	ENGINEERING MANAGEMENT II	
Depth Courses		
Select at least 24 hours of additional graduate coursework relevant to the dissertation topic, as determined by the supervising committee.		24
Research Hours		
Select at least 9 hours of independent research from the following		9
IE 6197	RESEARCH IN INDUSTRIAL ENGINEERING	
IE 6297	RESEARCH IN INDUSTRIAL ENGINEERING	
IE 6397	RESEARCH IN INDUSTRIAL ENGINEERING	
IE 6697	RESEARCH IN INDUSTRIAL ENGINEERING	
IE 6997	RESEARCH IN INDUSTRIAL ENGINEERING	
Dissertation		
Select at least 9 hours from the following: [1]		9
IE 6399	DISSERTATION	
IE 6699	DISSERTATION	
IE 6999	DISSERTATION	

IE 7399	DOCTORAL DEGREE COMPLETION	
Total Hours		**66**

[1]   IE 6399 may not be taken in the graduating semester, and IE 7399 may only be taken in the graduating semester.

Up to 30 hours of graduate-level organized coursework may be waived to meet any of the above organized coursework requirements. Waived courses must meet the approval of the graduate advisor and the student's supervising professor.

Program Completion

CONTINUATION

In order to continue in the program toward graduation, each graduate student must:

- Maintain at least a 3.0 overall GPA in all coursework taken as a graduate student and in the program, and
- Demonstrate suitability for professional practice.

If questions are raised by graduate faculty regarding either of the above, the student will be notified and will be provided the opportunity to respond to the Committee on Graduate Studies in the Department. The Committee on Graduate Studies will review the student's performance and make a recommendation concerning the student's eligibility to continue in the program. Appeal of a decision on continuation may be made through normal procedures outlined in the section of this catalog entitled "Grievances Other than Grades."

Advising Resources

New M.S. Students will attend a departmental orientation and receive advising for first-semester courses. Fast-Track M.S. Students must talk to an M.S. program advisor when enrolling at the beginning of each semester. New Ph.D. students will receive email communications from the Ph.D. program advisor on course requirements, course waivers, diagnostic exam, and other policies as appropriate. Students are welcome to contact program advisors via email with any questions.

Location:

420 Woolf Hall

Email:

imseinfo@uta.edu

Phone:

817-272-3092

Web:

Contact a graduate advisor (https://www.uta.edu/academics/schools-colleges/engineering/academics/departments/industrial/students/grad-advising/advisor-contact/)