Bachelor of Science in Industrial Engineering

About This Program

Bachelor of Science in Industrial Engineering students will be prepared for engineering practice through a curriculum culminating in a major engineering design experience that 1) incorporates appropriate engineering standards and multiple constraints, and 2) is based on the knowledge and skills acquired in earlier course work. The curriculum will include design, analysis, operation, and improvement of integrated systems that produce or supply products or services in an effective, efficient, sustainable, and socially responsible manner.

ABET ACCREDITATION

Accreditation is an assurance that the professionals that serve us have a solid educational foundation and are capable of leading the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public. The program in Industrial Engineering has been accredited since 1967 by the Engineering Accreditation Commission (EAC) of ABET (http://www.abet.org), under the commission's General Criteria and the Program Criteria for Industrial and Similarly Named Engineering Programs.

PROGRAM EDUCATIONAL OBJECTIVES

The program is designed so that a few years following graduation students will be able to:

- Create value via professional growth and development through the identification, development, and implementation of new or optimized processes, products, or integrated systems for stakeholders.
- Utilize experience to better communicate and document process descriptions, methodologies, data, analyses, results, and proposals to stakeholders.
- Foster a sense of belonging for the accomplishment of goals through effective team interactions consistent with professional practice.
- Maintain basic knowledge and skills and to evolve capabilities. through professional development and advanced education.
- Maintain a lifelong connection with the University and the professional community.

STUDENT OUTCOMES

Upon completion of the degree, students will be able to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Communicate effectively with a range of audiences.
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Admissions Criteria

ADMISSION TO INDUSTRIAL ENGINEERING PROGRAM

For admission to the industrial engineering program, all students must meet the requirements for admission to the College of Engineering. A grade point average of 2.5 in science, mathematics, and engineering courses is required for unconditional transfer into the department.

ADVANCEMENT INTO INDUSTRIAL ENGINEERING PROFESSIONAL PROGRAM

Requirements for advancement into the Professional Program in Industrial Engineering are in accordance with those in the College of Engineering with the added stipulations that:

- No professional Industrial Engineering course may be taken unless the student is admitted into the professional program or obtains the consent of the Undergraduate Advisor. Professional courses may be taken, in one and only one semester, to fill out a schedule in the semester that the last pre-professional course is taken.
- Each student must complete all pre-professional courses stipulated under "Requirements for a Bachelor of Science Degree in Industrial Engineering" with a minimum grade of C in each course and a minimum GPA of 2.5 in each of three categories: (1) overall, (2) required math, science, and engineering courses, and (3) required IE courses. In addition, there may be no more than four repeats of pre-professional engineering courses.

Most professional Industrial Engineering courses are offered only once a year. Students are urged to plan their course sequence schedules carefully to avoid delaying their graduation

Curriculum

Foundations		
General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/)		42
Students are required to complete specific courses in certain core areas. Those that are included in the preprofessional program are identified with a footnote in the table.		
For Communication select:		
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
ENGL 1301	RHETORIC AND COMPOSITION I [1]	
For Mathematics select:		
MATH 1426	CALCULUS I [1, 2]	
MATH 2425	CALCULUS II [1]	
For Life & Physical Science select:		
PHYS 1443	GENERAL TECHNICAL PHYSICS I [1]	
PHYS 1444	GENERAL TECHNICAL PHYSICS II [1]	
For Social & Behavioral Science select:		
IE 2308	ECONOMICS FOR ENGINEERS [1]	
For Foundational Component Area option select:		
MATH 2326	CALCULUS III [1]	
IE Foundations (Pre-Professional Program) [3]		
Additional hours required in core as part of the pre-professional program.		4
UNIV 1131	STUDENT SUCCESS	1
or ENGR 1101	ENTRANCE TO ENGINEERING FOR TRANSFER STUDENTS	
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
Select one of the following sequences:		8
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
CHEM 1465	CHEMISTRY FOR ENGINEERS (& Approved Science Elective)	
MAE 1351	INTRODUCTION TO ENGINEERING DESIGN	3
IE 1110	FIRST SEMESTER INDUSTRIAL AND SYSTEMS ENGINEERING SEMINAR	1
IE 1325	INTRODUCTION TO DATA ANALYSIS	3
IE 2305	COMPUTER APPLICATIONS IN INDUSTRIAL ENGINEERING (or approved alternative)	3
IE 3301	ENGINEERING PROBABILITY	3
IE 3315	OPERATIONS RESEARCH I	3
IE 3351	FUNDAMENTALS OF SYSTEMS ENGINEERING	3
IE Specialization (Professional Program)		
IE 3314	ENGINEERING RESEARCH METHODS	3
IE 3343	METRICS AND MEASUREMENT	3
IE 4303	PRODUCTION AND INVENTORY CONTROL	3
IE 4308	QUALITY SYSTEMS	3
IE 4315	OPERATIONS RESEARCH II	3
IE 4318	ENTERPRISE DESIGN	3
IE 4322	SIMULATION OF COMPLEX SYSTEMS	3
IE 4325	AUTOMATION AND ROBOTICS FOR SERVICE AND MANUFACTURING SYSTEMS	3

IE 4339	MANUFACTURING PROCESS & SYSTEM ANALYSIS	3
IE 4340	ENGINEERING PROJECT MANAGEMENT	3
IE 4343	FACILITIES PLANNING AND DESIGN	3
IE 4344	HUMAN FACTORS ENGINEERING AND COMPLEX SYSTEMS	3
IE 4345	DECISION ANALYSIS IN SYSTEM DESIGN	3
IE 4350	INDUSTRIAL AND SYSTEMS ENGINEERING CAPSTONE DESIGN	3
Technical Electives		
Select three upper-division courses in engineering, mathmatics, or science with prior advisor approval.		9
Total Hours		**128**

1 Core course included in the pre-professional program
2 Placement in MATH 1426 is based on UT Arlington math placement scores.
3 All pre-professional courses must be completed before enrolling in professional courses.

Note: Total hours will depend upon prior preparation and academic qualifications. Also, students who do not have two units of high school foreign language will be required to take modern and classical languages courses in addition to the previously listed requirements.

The Industrial and Manufacturing Systems Engineering Department conducts academic advising each semester. Each student must make an appointment to meet with the undergraduate advisor.

SUGGESTED COURSE SEQUENCE

For a suggested course sequence see the departmental website.

Program Completion

PROFESSIONAL COURSE GRADE REQUIREMENT

All professional courses, which are pre-requisites for other courses, must be completed with a minimum grade of C in each course.

ORAL COMMUNICATION AND COMPUTER USE COMPETENCY REQUIREMENTS

Students majoring in Industrial Engineering may use COMS 2302, to demonstrate oral communication competency. Students majoring in Industrial Engineering are required to take IE 1325 INTRODUCTION TO DATA ANALYSIS, where a computer competency examination will be administered. For transfer students and others who do not take IE 1325 INTRODUCTION TO DATA ANALYSIS, the computer literacy test will be administered by the University.

ACADEMIC HONESTY

The College of Engineering takes academic honesty and ethical behavior very seriously. Engineers are entrusted with the safety, health, and well being of the public. Students found guilty of academic dishonesty will be punished to the full extent permitted by the rules and regulations of UT Arlington. In particular, any student found guilty of a second offense by the Office of Student Judicial Affairs will be subject to dismissal from the College of Engineering.

OTHER PROVISIONS

Refer to the College of Engineering section of this catalog for information concerning the following topics: Preparation in High School for Admission to the College of Engineering, Admission to the College of Engineering, Admission to the Professional Program, Counseling, College of Engineering Academic Regulations, Transfer Policies, College of Engineering Probation, Repeating Course Policy, and Academic Honesty.

Advising Resources

Location:

325 Woolf Hall

Email:

IEUGAdvising@uta.edu

Phone:

817-272-3092

Web:

Undergraduate Advising Information