

GENERAL ENGINEERING, BSE

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Degree: Bachelor of Science in Engineering (BSE)

Major: General Engineering

Program Overview

The primary purpose of the General Engineering major is to serve the needs of students who have multiple areas of interest in technical fields or who do not wish to pursue pure engineering careers but are looking to expand their technological background to include non-technical pursuits, such as, for example, in business, psychology, history, or art. Thus wanting to pursue an academic curriculum that includes a combination of basic engineering and a variety of courses in both chemical engineering and electrical engineering, but not desiring a dual major, might be a valid reason to choose a General Engineering major. Alternatively, wanting to pursue a combination of basic engineering courses and business courses might be another reason to choose this major. This is not an ABET accredited program.

Learning Outcomes

- Students identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- Students 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
- Students communicate effectively with a range of audiences
- Students 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
- Students function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- Students develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- Students acquire and apply new knowledge as needed, using appropriate learning strategies.

Co-op and Internship Programs

Opportunities are available for students to alternate studies with work in industry or government as a co-op student, which involves paid full-time employment over seven months (one semester and one summer). Students may work in one or two co-ops, beginning in the third year of study. Co-ops provide students the opportunity to gain valuable hands-on experience in their field by completing a significant engineering project while receiving professional mentoring. During a co-op placement, students do not pay tuition but maintain their full-time student status

while earning a salary. Alternatively or additionally, students may obtain employment as summer interns.

Undergraduate Policies

For undergraduate policies and procedures, please review the Undergraduate Academics section of the General Bulletin.

Accelerated Master's Programs

Undergraduate students may participate in accelerated programs toward graduate or professional degrees. For more information and details of the policies and procedures related to accelerated studies, please visit the Undergraduate Academics section of the General Bulletin.

Program Requirements

Students seeking to complete this major and degree program must meet the general requirements for bachelor's degrees and the Unified General Education Requirements. Students completing this program as a secondary major while completing another undergraduate degree program do not need to satisfy the school-specific requirements associated with this major.

A student choosing to pursue a General Engineering major must work with the Associate Dean of Academics in the School of Engineering to develop and submit a clear statement of career goals. These should be supported by a detailed course curriculum and sample schedule with a written justification for the selections. The program must then be approved by a committee consisting of the Associate Dean of Academics and two additional faculty members in the School of Engineering. A total of at least 128 credit hours are required for graduation.

Required Courses:

Code	Title	Hours
Required Mathematics, Science and Engineering Courses		
MATH 121	Calculus for Science and Engineering I	4
MATH 122	Calculus for Science and Engineering II	4
or MATH 124	Calculus II	
MATH 223	Calculus for Science and Engineering III	3
or MATH 227	Calculus III	
MATH 224	Elementary Differential Equations	3
or MATH 228	Differential Equations	
PHYS 121	General Physics I - Mechanics	4
or PHYS 123	Physics and Frontiers I - Mechanics	
PHYS 122	General Physics II - Electricity and Magnetism	4
or PHYS 124	Physics and Frontiers II - Electricity and Magnetism	
CHEM 111	Principles of Chemistry for Engineers	4
ENGR 130	Foundations of Engineering and Programming	3
ENGR 145	Chemistry of Materials	4
ENGR 200	Statics and Strength of Materials	3
ENGR 210	Introduction to Circuits and Instrumentation	4
ENGR 225	Thermodynamics, Fluid Dynamics, Heat and Mass Transfer	4
ENGR 399	Impact of Engineering on Society	3

Code	Title	Hours
Major Requirements:		
	Engineering courses ^a	30

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Courses chosen in consultation with the Associate Dean ^a	18
Open elective courses	9

- a The chosen courses must include a 3 credit hour capstone course and should be approved by a committee consisting of the Associate Dean of Academics and at least two additional faculty members.