ENGINEERING - ROBOTICS, B.S.

Course	Title	Credits
Freshman Year		
Fall Semester		
ENGR1100	INTRODUCTION TO ENGINEERING EXPERIENCE	2
ENGR1206	ENGINEERING LABORATORY-BSEN	2
MATH1776	CALCULUS 1A	2
MATH1777	CALCULUS 1B	2
PHYS1250	ENGINEERING PHYSICS I	4
English Sequence*		4
	Credits	**16**
Spring Semester		
ENGR1300	FIRST-YEAR ENGINEERING DESIGN	2
ENGR1406	APPLIED ENGINEERING ANALYSIS-BSEN	2
MATH1876	CALCULUS 2A	2
MATH1877	CALCULUS 2B	2
PHYS1750	ENGINEERING PHYSICS II	4
English Sequence*		4
	Credits	**16**
Sophomore Year		
Fall Semester		
ENGR2100	PROGRAMMING FOR ENGINEERS	4
MATH2600	DIFFERENTIAL EQUATIONS & LINEAR SYSTEMS	4
MECH2400	APPLIED MECHANICS	4
Science Elective		4
	Credits	**16**
Spring Semester		
MATH2025	MULTIVARIABLE CALCULUS	4
ELEC2300	CIRCUIT ANALYSIS	4
MECH3850	ENGINEERING DYNAMICS	4
HSS Elective*		4
COOP2500	INTRODUCTION TO COOPERATIVE EDUCATION	0
	Credits	**16**
Summer Semester		
COOP3000	OPTIONAL COOP EDUCATION	
	Credits	**0**
Junior Year		
Fall Semester		
ELEC2525	ELECTRICIAL FUNDAMENTALS FOR ROBOTICS	4
MECH3175	MECHANICAL FUNDAMENTALS FOR ROBOTICS	4
HSS Elective*		4
MATH/Science Elective		4
	Credits	**16**
Spring Semester		
COOP3500	COOP EDUCATION 1	0
	Credits	**0**
Summer Semester		
ELEC3450	MICROCONTROLLERS & EMBEDDED COMMUNICATION	4
ELEC4475	FEEDBACK AND CONTROL	4
ENGR3500	ENGINEERING JUNIOR DESIGN	4
ENGR3600	ROBOTICS ENGINEERING I	4
	Credits	**16**
Senior Year		
Fall Semester		
COOP4500	COOP EDUCATION 2	0
	Credits	**0**
Spring Semester		
ENGR4000	ROBOTICS ENGINEERING II	4
ENGR5000	ENGINEERING SENIOR DESIGN I	4
GENERAL Elective		4
GENERAL Elective		4
	Credits	**16**
Summer Semester		
ENGR5500	ENGINEERING SENIOR DESIGN II	4
GENERAL Elective		4
GENERAL Elective		4
HSS Elective*		4
	Credits	**16**
	Total Credits	**128**

Math Placement (https://catalog.wit.edu/academic-policies-procedures/ug/math-placement/) may alter the course schedule above.

The Bachelor of Science in Engineering is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org).

The Bachelor of Science in Engineering (BSEN) degree program is a four-year innovative curriculum providing students the flexibility to customize their engineering degree. Students can integrate an engineering concentration course of study with directed studies or minor(s) of their choice to broaden their education for their professional and personal goals. Students work with the associate dean and/or a full-time faculty mentor to customize their education. Advice shall be provided for both their specialized area of engineering study (concentration) and an area of directed studies or minor(s). The BSEN program allows students to compliment an engineering curriculum with directed study courses/minor(s) to expand their education beyond a single area of study.

Students in the BSEN program are required to select one area of engineering concentration at the end of their freshman year from the following concentrations: Biomedical, Civil, Computer, Electrical, or Mechanical, as well as a minor(s)/directed studies. Recommended plans of study are indicated below in the concentration curriculum sheets for the various engineering concentration tracks. Students are required to consult with their academic advisers to identify their concentration track and directed studies path. Students may plan to study abroad for one semester, ideally during the Fall semester of their junior year.

All concentrations of the BSEN curriculum include the following:

- A set of core engineering concentration courses
- A set of mathematics and science courses supporting the engineering discipline
- A set of general education courses providing the foundation to understand the role and responsibility of an engineer in society, and in a global environment
- A set of directed study courses/minor(s) courses providing a pathway for students' future goals. A set of interdisciplinary design courses allowing students to collaborate with one another on a variety of projects

BSEN curriculum total credit hours for all concentration tracks:

- Engineering Concentration courses: 45 credits
- Mathematics and Basic Science: 32 credits
- General Education: 20 credits
- Electives: 16 credits
- Business / Management: 18 credits

Program Educational Objectives

Graduates of the engineering program will (within a few years of graduation):

- Pursue a life of curiosity and passion to explore the diverse applications of engineering
- Apply Engineering fundamentals with confidence and humility to develop innovative and effective solutions in a professional and ethical manner
- Pursue professional development to meet and adapt to emerging and evolving engineering challenges

Student Outcomes

Students from the engineering program will attain (by the time of graduation):

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