

ENGINEERING BACHELOR OF SCIENCE

Leading to a Bachelor of Science Degree in Engineering

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 minor(s) of their choice to broaden their education for their professional and personal goals. Students work with the associate dean, program director and/or a full-time faculty mentor to customize their education.

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, Mechanical, Advanced Manufacturing, Robotics, and Aerospace. 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.

Program Educational Objectives

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

- To engage in lifelong learning to adapt to the evolving applications of engineering.
- To lead a successful career in engineering or related fields.
- To contribute to the advancement of engineering through voluntarism and professionalism to address industry and societal needs.

Student Outcomes

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

- An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
- 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.
- An ability to communicate effectively with a range of audiences.
- 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.
- 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.
- An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Total credits for degree: 127

Wentworth's Bachelor of Science in Engineering (BSEN) is a full-time, 4-year innovative interdisciplinary degree for students who prefer to create a curriculum integrating their engineering and non-engineering interests in a structured manner. Study Abroad is also highly encouraged, with various study abroad and co-op abroad options to select from.

BSEN students are required to select a concentration from eight possible engineering areas: (1) Biomedical, (2) Civil, (3) Computer, (4) Electrical, (5) Mechanical, (6) Robotics, (7) Advanced Manufacturing, and (8) Aerospace Engineering.

Electives

Students may select courses that match their personal interests and broaden their career options. The combinations are varied and limited only by student interests and imagination. Our engineering students have focused on fields ranging from Sustainability, Life Cycle Analysis, Business Management, Computer Science, Applied Math and Sciences, Music, and Art.

Working closely with a faculty advisor and/or a full-time faculty member, students design an engineering education meeting individualized personal and professional goals.

First Year

Fall Semester		Credits
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		Credits
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

Second Year

Fall Semester		Credits
ENGR2100	PROGRAMMING FOR ENGINEERS	4
MATH2600	DIFFERENTIAL EQUATIONS & LINEAR SYSTEMS	4
Engineering Concentration (EC) 1		3
Math/Science Elective		4
Credits		15

Spring Semester		Credits
MATH2025	MULTIVARIABLE CALCULUS	4
Engineering Concentration (EC) 2		4
Engineering Concentration (EC) 3		4

HSS Elective*		4
COOP2500	CO-OP INSTITUTE	0
Credits		16
Summer Semester		
COOP3000	OPTIONAL COOP EDUCATION	
Credits		0
Third Year		
Fall Semester		
Engineering Concentration (EC) 4		4
Engineering Concentration (EC) 5		4
HSS Elective*		4
Math/Science Elective		4
Credits		16
Spring Semester		
COOP3500	COOP EDUCATION 1	0
Credits		0
Summer Semester		
ENGR3500	ENGINEERING JUNIOR DESIGN	4
Engineering Concentration (EC) 6		4
Engineering Concentration (EC) 7		4
Engineering Concentration (EC) 8		4
Credits		16
Fourth Year		
Fall Semester		
COOP4500	COOP EDUCATION 2	0
Credits		0
Spring Semester		
ENGR5000	ENGINEERING SENIOR DESIGN I	4
Engineering Concentration (EC) 9		4
Free Elective		4
Free Elective		4
Credits		16
Summer Semester		
ENGR5500	ENGINEERING SENIOR DESIGN II	4
Free Elective		4
Free Elective		4
HSS Elective*		4
Credits		16
Total Credits		127

ENGL/HSS Note

Students are required to complete:

- At least one course in Humanities: CSAS, HSSI, HIST, HUMN, LITR and PHIL
- At least one course in the Social Sciences: CSAS, HSSI, COMM, ECON, ENVM, POLS, PSYC and SOCL
- The remaining course from either the Humanities or Social Sciences category.

Students with a three English course sequence may use the third English course to satisfy a Humanities requirement.

A minimum of 20 credits total, including English, humanities, and social science credit, is required to complete the humanities and social sciences graduation requirement.

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

BSEN Program Timeline

Action	Year	Term	Next Step
Registration Access Codes	Freshman	FALL/SPRING	Meet with (RACs access code, 'Alternate PIN') Advisor/Student Success Advisor
Concentration Declaration	Freshman	FALL for BMED Concentration/ all other concentrations SPRING	Meet with Faculty Advisor or Student Success Advisor