

MECHANICAL ENGINEERING BACHELOR OF SCIENCE

Leading to a Bachelor of Science Degree in Mechanical Engineering

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

The Mechanical Engineering (BSME) program is a four-year engineering program with an integrated project- and laboratory-based experience that provides a unique approach to applied learning. Grounded in a solid foundation of mathematics, science, and the humanities and social sciences, this program incorporates all the essential elements of a mechanical engineering curriculum. The program additionally integrates practical engineering design into courses throughout its study, extensive use of computers to solve engineering problems (including developing detailed manufacturing documentation), and a faculty commitment to maintaining a curriculum that parallels industrial changes.

BSME students spend a great deal of time working in our state-of-the-art laboratories, using computers and test equipment to verify and develop engineering principles in diverse areas such as statics, thermodynamics, material science, data acquisition, structural analysis, and machine design.

Mechanical Engineering students complete two semesters of cooperative industrial work experience in fields related to mechanical engineering, giving Wentworth students an advantage over their peers at graduation. Graduates may continue their studies at the graduate level or pursue an industrial career. Wentworth BSME graduates are practical engineers with expertise in mechanical engineering and who are in high demand and well-prepared to meet the professional challenges of a constantly changing and increasingly global workforce.

Program Educational Objectives

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

- Pursue professional development to meet and adapt to the emerging and evolving technology.
- Embark on successful careers in the field of Mechanical engineering or related fields.
- Contribute to their fields or professions.

Student Outcomes

Students from the mechanical 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: 128

Mechanical Engineering is a four-year program, starting in the fall semester of the student's first year and planned to end in the summer semester of the student's fourth year.

Special Requirement for Graduation

In addition to the general graduation requirements of the University, specific graduation requirements from the Mechanical Engineering (BSME) program with a Bachelor of Science degree include maintaining a minimum cumulative grade point average of 2.0 for all technical courses. The courses used to determine the cumulative grade point average for all BSME technical courses are courses with ELEC, ENGR and MECH prefixes. If another Wentworth course is substituted for one of these listed courses, the substitute course will be calculated into this cumulative grade point average for all technical courses.

First Year

Fall Semester		Credits
ENGR1100	INTRODUCTION TO ENGINEERING EXPERIENCE	2
MATH1776	CALCULUS 1A	2
MATH1777	CALCULUS 1B	2
ENGR1206	ENGINEERING LABORATORY-BSEN	2
PHYS1250	ENGINEERING PHYSICS I	4
English Sequence		4
Credits		16

Spring Semester		Credits
ENGR1300	FIRST-YEAR ENGINEERING DESIGN	2
MATH1876	CALCULUS 2A	2
MATH1877	CALCULUS 2B	2
ENGR1406	APPLIED ENGINEERING ANALYSIS-BSEN	2
PHYS1750	ENGINEERING PHYSICS II	4
English Sequence		4
Credits		16

Second Year

Fall Semester		Credits
MECH2000	ENGINEERING STATICS	4
MECH2300	ENGINEERING GRAPHICS	3
ELEC2799	CIRCUIT THEORY AND APPLICATION	3
MATH2025	MULTIVARIABLE CALCULUS	4
Credits		14

Spring Semester		Credits
MECH2250	ENGINEERING THERMODYNAMICS I	4
MECH2500	MECHANICS OF MATERIALS	4
CHEM1100	GENERAL CHEMISTRY I	4

MATH2600	DIFFERENTIAL EQUATIONS & LINEAR SYSTEMS	4
COOP2500	CO-OP INSTITUTE	0
Credits		16
Summer Semester		
COOP3000	PRE CO-OP WORK TERM (OPTIONAL)	0
Credits		0
Third Year		
Fall Semester		
MECH2750	ENGINEERING THERMODYNAMICS II	4
MECH3000	DESIGN OF MACHINE ELEMENTS	4
MECH3100	ENGINEERING FLUID MECHANICS	4
Technical Elective		3
HSS Elective		4
Credits		19
Spring Semester		
COOP3500	COOP EDUCATION 1	0
Credits		0
Summer Semester		
MECH3600	MATERIALS SCIENCE	4
MECH3850	ENGINEERING DYNAMICS	4
MECH3900	ENGINEERING HEAT TRANSFER	4
MATH2100	PROBABILITY & STATISTICS FOR ENGINEERS	4
Credits		16
Fourth Year		
Fall Semester		
COOP4500	COOP EDUCATION 2	0
Credits		0
Spring Semester		
MECH4000	MECHANICAL VIBRATION	3
MECH4200	SIMULATION BASED DESIGN	4
MECH5000	MECHANICAL ENGINEERING CAPSTONE ANALYSIS	3
Free Elective		3
HSS Elective*		4
Credits		17
Summer Semester		
MECH5500	MECHANICAL ENGINEERING CAPSTONE PROJECT	4
Technical Elective		3
HSS Elective*		4
Free Elective		3
Credits		14
Total Credits		128

- 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.

General and Technical Electives are selected in consultation with a Faculty Advisor

ENGL/HSS Note

Students are required to complete:

- At least one course in Humanities: CSAS, HSSI, HIST, HUMN, LITR and PHIL