

MECHANICAL ENGINEERING (BSE)

Bachelor of Science in Engineering

The Mechanical Engineering major requires a total of 128 credits.
Mechanical Engineering majors are required to complete the following:

Course	Title	Credits
CE 2110	Applied Mechanics I	3
CE 3110	Mechanics of Materials	3
ECE 2000	Electrical and Computer Engineering Principles	3
or ECE 2001	Electrical Circuits	
COMM 2100	Professional Communication	3
ENGR 1166	Foundations of Engineering	3
ENGR 3400	Engineering Data Analysis Techniques	3
MATH 2110Q	Multivariable Calculus	4
MATH 2410Q	Elementary Differential Equations	3
ME 2015	Introduction to Computing for Mechanical Engineers	1
ME 2016	Introduction to Computational Fluid Dynamics	1
ME 2017	Introduction to Finite Element Analysis	1
ME 2120	Applied Mechanics II	3
ME 2140	Computer-Aided Design and Manufacturing	3
ME 2233	Thermodynamic Principles	3
ME 2234	Applied Thermodynamics	3
ME 3130	Advanced Engineering Mathematics	3
ME 3220	Mechanical Vibrations	3
ME 3227	Design of Machine Elements	3
ME 3242	Heat Transfer	3
ME 3250	Fluid Dynamics I	3
ME 3254	Linear Systems Theory	3
ME 3262	Applied Measurements and Data Analysis	3
ME 3970	Junior Design	3
ME 4974W	Ethics for Engineers	1
ME 4975	Senior Design Project I ¹	3
ME 4976	Senior Design Project II ¹	3
MSE 2001	Introduction to Structure, Properties, and Processing of Materials I	3
or MSE 2101	Materials Science and Engineering I	
Electives		12

¹ Students who begin their senior year prior to the 2027-2028 academic year must complete ME 4972 Senior Design Project I and ME 4973W Senior Design Project II in place of ME 4975 Senior Design Project I and ME 4976 Senior Design Project II.

Concentration Requirements

- 12 credits (four courses, 2000 level and above);
- no course grades of less than "C";

- plan of study for concentration;
- must take courses from a subset of identified courses.

Aerospace Concentration

Course	Title	Credits
ME 3239	Combustion for Energy Conversion	
ME 3251	Fluid Dynamics II	
ME 3275	Introduction to Computational Fluid Dynamics	
ME 3276	Propulsion	
ME 3280	Turbines and Centrifugal Machinery	
ME 5311	Computational Fluid Dynamics	
ME 6160	Turbines and Centrifugal Machinery	
ME 3295	Special Topics in Mechanical Engineering ¹	

¹ Taught as any of these: Acoustics, Aerodynamics, Aerodynamics and Flight Mechanics, Aerospace Control Systems Aircraft Performance; Stability and Control; Analysis of Composite Materials and Structures; Introduction to the Finite Element Method; Mechanics of Composite Materials, Orbital Mechanics, or Structural Dynamics.

Energy and Power Concentration

Course	Title	Credits
ME 3239	Combustion for Energy Conversion	
ME 3251	Fluid Dynamics II	
ME 3270	Fuel Cells	
ME 3275	Introduction to Computational Fluid Dynamics	
ME 3276	Propulsion	
ME 3280	Turbines and Centrifugal Machinery	
ME 3285	Sustainable Energy Sources and Systems	
ME 5311	Computational Fluid Dynamics	
ME 6160	Turbines and Centrifugal Machinery	
ME 3295	Special Topics in Mechanical Engineering ¹	

¹ Taught as any of the following: Aerodynamics, Aerodynamics and Flight Mechanics, Radiation Heat Transfer.

Dynamic Systems and Control Concentration

Course	Title	Credits
ME 3214	Dynamics of Particles and Rigid Bodies	
ME 3161	Introduction to Robotics	
ME 3295	Special Topics in Mechanical Engineering ¹	
ME 5160	Theory and Design of Automatic Control Systems	
ME 5180	Dynamics	
ME 5210	Intelligent Material Systems and Structures	
ME 5420	Mechanical Vibrations I	
ME 6330	Advanced Measurement Techniques	
ME 5895	Special Topics in Mechanical Engineering ²	

¹ When taught as any of the following: Aerospace Control Systems; Acoustics; Advanced Vibrations; Intelligent Material Systems and Structures; Mechatronics; Modeling and Simulation for Materials

and Biology; Optimal and Adaptive Controls; Orbital Mechanics, Soft Robotics, or Structural Dynamics.

² When taught as Mechatronics.

Design and Manufacturing Concentration

Course	Title	Credits
ME 3161	Introduction to Robotics	
ME 3217	Metal Cutting Principles	
ME 3221	Manufacturing Automation	
ME 3222	Production Engineering	
ME 3224		
ME 3225	Computer-Aided Design, Modeling, and Graphics	
ME 3228	Introduction to Fatigue in Mechanical Design	
ME 5511	Principles of Optimum Design	
ME 5155		
ME 5150	Analytical and Applied Kinematics	
ME 5210	Intelligent Material Systems and Structures	
ME 5220		
ME 5895	Special Topics in Mechanical Engineering ¹	
ME 3295	Special Topics in Mechanical Engineering ²	

¹ When taught as Probabilistic Engineering Design.

² When taught as any of the following: Advanced Biomechanics of Soft Tissues; Analysis of Composite Materials and Structures; Computers in Manufacturing; Geometric Modeling; Intelligent Material Systems and Structures; Introduction to Products and Processes; Introduction to the Finite Element Method; Manufacturing of Biointegrated Materials and Devices at Micro and Nanoscales; Mechanics of Architected Materials; Mechanics of Composite Materials; Principles of Optimum Design, Six Sigma Green Belt Using Minitab, or Soft Robotics.

Concentration in Naval Science and Technology

The concentration in Naval Science and Technology is designed to expose students to engineering concepts and topics of importance to the Navy and industries that support naval science and technology. It is focused on facilitating interactions between students and naval professionals as well as hands-on and experiential activities related to senior design projects or independent study projects that have naval science and technology connections.

Course	Title	Credits
ENGR 3109	Navy STEM Professional Development Seminar (at least 3 credits)	3
Select two of the following:		6
ME 3396	Honors Research	
ME 3299	Problems in Mechanical Engineering	
ME 4975	Senior Design Project I	
ME 4976	Senior Design Project II	

Students electing to complete the concentration must do so in their primary major, and as such select elective coursework from their primary discipline. Students electing to use their Senior Design course sequence must have their project topic approved by both their departmental senior

design coordinator and either the director of the Navy STEM Program or the Associate Dean for Undergraduate Education.

Students electing to use Special Topics courses or Independent Study/Research courses must have the course or research topic approved by both their department and either the director of the Navy STEM Program or the Associate Dean for Undergraduate Education. Other courses relevant to naval science and technology may be considered for the concentration by petition to the director of the Navy STEM Program or the Associate Dean of Undergraduate Education. Students may not apply courses used in this concentration to fulfill requirements for other concentrations or minors.

The concentration in Naval Science and Technology is restricted to U.S. citizens.

The faculty of the Mechanical Engineering program at the University of Connecticut strives to continuously improve our undergraduate program in Mechanical Engineering. The program's educational objectives are that our graduates: will be gainfully employed in Mechanical Engineering or related career paths including industrial, academic, governmental and non-governmental organizations and will continue their professional development by engaging in professional activities and/or training to enhance their careers and/or pursue post-graduate studies.

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