

MECHANICAL ENGINEERING (COURSE 2)

Department of Mechanical Engineering (<https://catalog.mit.edu/schools/engineering/mechanical-engineering/#undergraduatetext>)

Bachelor of Science in Mechanical Engineering

General Institute Requirements (GIRs)

The General Institute Requirements include a Communication Requirement that is integrated into both the HASS Requirement and the requirements of each major; see details below.

Summary of Subject Requirements	Subjects
Science Requirement	6
Humanities, Arts, and Social Sciences (HASS) Requirement; at least two of these subjects must be designated as communication-intensive (CI-H) to fulfill the Communication Requirement.	8
Restricted Electives in Science and Technology (REST) Requirement [can be satisfied by 2.001 and 18.03 in the Departmental Program]	2
Laboratory Requirement (12 units) [can be satisfied by 2.671 in the Departmental Program]	1
Total GIR Subjects Required for SB Degree	17

Physical Education Requirement

Swimming requirement, plus four physical education courses for eight points.

Departmental Program

Choose at least two subjects in the major that are designated as communication-intensive (CI-M) to fulfill the Communication Requirement.

Required Core Subjects	Units
2.001 Mechanics and Materials I	12
2.002 Mechanics and Materials II	12
2.003[J] Dynamics and Control I	12
2.004 Dynamics and Control II	12
2.005 Thermal-Fluids Engineering I	12
2.006 Thermal-Fluids Engineering II	12
2.007 Design and Manufacturing I or 2.017[J] Design of Electromechanical Robotic Systems	12
2.008 Design and Manufacturing II	12
2.086 Numerical Computation for Mechanical Engineers	12
2.670 Mechanical Engineering Tools ¹	3
2.671 Measurement and Instrumentation (CI-M)	12

2.THU Undergraduate Thesis ²	6
18.03 Differential Equations	12

Select one of the following: 12-15

2.009 The Product Engineering Process (CI-M)	
2.013 Engineering Systems Design (CI-M)	
2.750[J] Medical Device Design (CI-M)	
2.760 Global Engineering (CI-M)	

Restricted Electives

Select two of the following: ¹ 24

2.014 Engineering Systems Development	
2.016 Hydrodynamics	
2.017[J] Design of Electromechanical Robotic Systems	
2.019 Design of Ocean Systems (CI-M)	
2.050[J] Nonlinear Dynamics: Chaos	
2.12 Introduction to Robotics	
2.14 Analysis and Design of Feedback Control Systems	
2.184 Biomechanics and Neural Control of Movement	
2.370 Fundamentals of Nanoengineering	
2.51 Intermediate Heat and Mass Transfer	
2.60[J] Fundamentals of Advanced Energy Conversion	
2.650[J] Introduction to Sustainable Energy	
2.71 Optics	
2.72 Elements of Mechanical Design	
2.744 Product Design	
2.782[J] Design of Medical Devices and Implants	
2.797[J] Molecular, Cellular, and Tissue Biomechanics	
2.813 Energy, Materials, and Manufacturing	
2.853 Introduction to Manufacturing Systems	
2.96 Management in Engineering	
2.C01 Physical Systems Modeling and Design Using Machine Learning and Modeling with Machine Learning: from Algorithms to Applications	
2.C27[J] Computational Imaging: Physics and Algorithms	

Units in Major 177-180

Unrestricted Electives ³ 48

Units in Major That Also Satisfy the GIRs	(36)
Total Units Beyond the GIRs Required for SB Degree	189-192

The units for any subject that counts as one of the 17 GIR subjects cannot also be counted as units required beyond the GIRs.

- ¹ Consult the MechE Undergraduate Office, Room 1-110, regarding substitutions.
- ² To encourage more substantial research, design, or independent study, the department permits up to 15 units of 2.THU credit, subject to approval of the student's thesis advisor.
- ³ The department suggests that students select a basic electronics subject (e.g., 2.678, 6.2000, or 22.071) as early as possible in their program.