

ENGINEERING (COURSE 22-ENG)

Department of Nuclear Science and Engineering (<https://catalog.mit.edu/schools/engineering/nuclear-science-engineering/#undergraduatetext>)

Bachelor of Science in 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 [can be satisfied by 22.04[J] in the Departmental Program]; 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 from among 1.00, 2.086, 6.100A/6.100B, 18.03, 18.05, 18.06, 18.Co6[J], 18.600, and 22.01 in the Departmental Program]	2
Laboratory Requirement (12 units) [can be satisfied by 22.09 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.

Core Requirements	Units
2.005 Thermal-Fluids Engineering I	12
18.03 Differential Equations ¹	12
22.01 Introduction to Nuclear Engineering and Ionizing Radiation	12
22.04[J] Social Problems of Nuclear Energy (CI-M)	12
22.09 Principles of Nuclear Radiation Measurement and Protection (CI-M)	15

System Specialization

22.06 Engineering of Nuclear Systems	12
or 22.061 Fusion Energy	

Computational Elective

Select one of the following: 12

1.000	Introduction to Computer Programming and Numerical Methods for Engineering Applications
2.086	Numerical Computation for Mechanical Engineers
6.100A & 6.100B	Introduction to Computer Science and Introduction to Computational Thinking and Data Science
6.100A & CSE.C20[J]	Introduction to Computer Science and Introduction to Computational Science and Engineering
12.010	Computational Methods of Scientific Programming
22.C25[J]	Real World Computation with Julia

Mathematics Elective

Select one of the following: 12

6.3700	Introduction to Probability
18.04	Complex Variables with Applications
18.05	Introduction to Probability and Statistics
18.06	Linear Algebra
18.Co6[J]	Linear Algebra and Optimization
18.075	Methods for Scientists and Engineers
18.600	Probability and Random Variables

Senior Project

Select one of the following: 15

22.033	Nuclear Systems Design Project
22.THT & 22.THU	Undergraduate Thesis Tutorial and Undergraduate Thesis (CI-M)

Focus Area

A program of 72 units of electives from a proposal of study approved by the department 72

Units in Major 186

Unrestricted Electives 48

Units in Major That Also Satisfy the GIRs (48)

Total Units Beyond the GIRs Required for SB Degree 186

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 18.032 Differential Equations is also an acceptable option.