

NUCLEAR SCIENCE AND ENGINEERING (COURSE 22)

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

Bachelor of Science in Nuclear Science and 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 by 8.03 and 22.071 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.

| Basic Requirements | Units |
|--|-------|
| 2.005 Thermal-Fluids Engineering I | 12 |
| 8.03 Physics III | 12 |
| 18.03 Differential Equations ¹ | 12 |
| 22.01 Introduction to Nuclear Engineering and Ionizing Radiation | 12 |
| 22.071 Electronics, Signals, and Measurement | 12 |
| <i>Select one of the following:</i> | 12 |
| 1.000 Computer Programming for Engineering Applications | |
| 2.086 Numerical Computation for Mechanical Engineers | |

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|--------|--|
| 6.00 | Introduction to Computer Science and Programming |
| 12.010 | Computational Methods of Scientific Programming |

Required Core Subjects

| | | |
|----------|--|----|
| 22.02 | Introduction to Applied Nuclear Physics | 12 |
| 22.033 | Nuclear Systems Design Project | 15 |
| 22.04[J] | Social Problems of Nuclear Energy | 12 |
| 22.05 | Neutron Science and Reactor Physics | 12 |
| 22.06 | Engineering of Nuclear Systems | 12 |
| 22.09 | Principles of Nuclear Radiation Measurement and Protection | 12 |

Required Thesis ²

| | | |
|--------|-------------------------------|---|
| 22.THT | Undergraduate Thesis Tutorial | 3 |
| 22.THU | Undergraduate Thesis | 9 |

Mathematics Elective

| | | |
|-------------------------------------|--|----|
| <i>Select one of the following:</i> | | 12 |
| 6.041A & 6.041B | Introduction to Probability I and Introduction to Probability II | |
| 18.04 | Complex Variables with Applications | |
| 18.05 | Introduction to Probability and Statistics | |
| 18.0751 | Methods for Scientists and Engineers | |
| 18.600 | Probability and Random Variables | |

Restricted Electives in NSE

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|--|----|
| In consultation with advisor, select two subjects in NSE | 24 |
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Units in Major 195

Unrestricted Electives 48

Units in Major That Also Satisfy the GIRs (48)

Total Units Beyond the GIRs Required for SB Degree 195

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.

² Unit totals shown are the minimum requirements.