Bachelor of Science in Engineering as Recommended by the Department of Chemical Engineering/Course 10-ENG

General Institute Requirements (GI Rs) Subjects
Science Requirement
- Humanities, Arts, and Social Sciences Requirement 6
- Restricted Electives in Science and Technology (REST) Requirement [can be satisfied from among 5.60, 10.301, or 18.03 or in the Departmental Program] 8
- Laboratory Requirement [can be satisfied by 1.106 and 1.107, or 2.671, 3.014, 5.310, 10.467, 10.702, or 12.335 in the Departmental Program] 2

Total GI Rs Subjects Required for SB Degree 17

Communication Requirement
The program includes a Communication Requirement of 4 subjects:
- 2 subjects designated as Communication Intensive in Humanities, Arts, and Social Sciences (CI-H); and
- 2 subjects designated as Communication Intensive in the Major (CI-M).

PLUS Departmental Program

Subject names below are followed by credit units, and by prerequisites, if any (corequisites in italics)

Required Subjects 81
- 5.60 Thermodynamics and Kinetics, 12, REST; Calculus II (GIR), Chemistry (GIR)
- 10.03 Differential Equations, 12, REST; Calculus II (GIR)
- 10.10 Introduction to Chemical Engineering, 12; Physics I (GIR), Calculus I (GIR), Chemistry (GIR)
- 10.213 Chemical and Biological Engineering Thermodynamics, 12; 5.60, 10.10
- 10.301 Fluid Mechanics, 12, REST; 18.03, 10.10
- 10.302 Transport Processes, 12; 5.60, 10.301, 10.213; or permission of instructor
- 10.37 Chemical Kinetics and Reactor Design, 9; 5.60, 10.301

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All subjects are suitable for any concentration within the program. In consultation with the advisor, students select one subject from each of the three groups. Students may not exceed the 45-unit cap except by petition.

Group I. Choose one of the following Course 10 CI-M subjects:
- 10.26 Chemical Engineering Projects Laboratory, 15, CI-M; 5.310*; 10.302; or permission of instructor
- 10.27 Energy Engineering Projects Laboratory, 15, CI-M; 5.310*; 10.302; or permission of instructor
- 10.28 Chemical-Biological Engineering Laboratory, 15, CI-M; 7.05*; or permission of instructor
- 10.29 Biological Engineering Projects Laboratory, 15, CI-M*; 5.310*; 10.302; or permission of instructor
- 10.467 Polymer Science Laboratory, 15, LAB, CI-M*; 5.12; 5.310*

Group II. Choose one of the following Institute Laboratory subjects:
- 1.106 Environmental Fluid Transport Processes and Hydrology Laboratory, 6, LAB*; 1.061, 1.070
- 1.107 Environmental Chemistry and Biology Laboratory, 6, LAB*; 1.080
- 2.671 Measurement and Instrumentation, 12, LAB, CI-M; 2.001, 2.003, Physics II (GIR)
- 3.014 Materials Laboratory, 12, LAB, CI-M*
- 5.310 Laboratory Chemistry, 12, LAB, M; 5.12
- 5.35 Introduction to Experimental Chemistry, 12, LAB; Chemistry (GIR)
  - Module 1: Survey of Spectroscopy, 4
  - Module 2: Inorganic Synthesis and Kinetics, 4; Module 1
  - Module 3: Polymeric Light Emitting Devices, 4; 5.12, Module 2
- 12.335 Experimental Atmospheric Chemistry, 12, LAB, CI-M*; Chemistry (GIR)
- 20.109 Laboratory Fundamentals in Biological Engineering, 15, LAB, CI-M*; Biology (GIR), Chemistry (GIR), 6.00, 18.03; 20.110* 2

Group III. Choose one of the following:
- 1.00 Introduction to Computers and Problem Solving, 12, REST; Calculus I (GIR)
- 1.018j Ecology I: The Earth System, 12, REST (i)
- 1.080 Environmental Chemistry, 12*; Chemistry (GIR)
- 3.012 Fundamentals of Materials Science and Engineering, 15, REST*; 18.03*
- 3.155l Micro/Nano Processing Technology, 12, CI-M*; permission of instructor
- 5.12 Organic Chemistry I, 12, REST; Chemistry (GIR)
- 5.61 Physical Chemistry, 12, REST; Physics II (GIR), Calculus II (GIR), Chemistry (GIR)
- 6.00 Introduction to Computer Science and Programming, 12, REST
- 7.03 Genetics, 12, REST*; Biology (GIR)
- 8.21 Physics of Energy, 12, REST*; Physics II (GIR), Calculus II (GIR), Chemistry (GIR)

Engineering Concentration
These four electives define a concentrated area of study in one of the following designated concentrations: biomedical engineering, energy, environmental studies, or materials process and design. In all cases, the electives must be chosen with the approval of the student’s advisor and the department. Lists of recommended subjects for each concentration are available from the department. Note that subjects that have been used to satisfy the foundational concepts may not also be counted toward the engineering concentration.

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Option 1
- 10.90 Integrated Chemical Engineering I, 10.37
- 10.49 Integrated Chemical Engineering Topics I, 10.301 and permission of instructor
- 10.493 Integrated Chemical Engineering Topics II, 10.301 and permission of instructor
- 10.494 Integrated Chemical Engineering Topics III, 10.301 and permission of instructor

Option 2
- 10.910 Independent Research Problems, units arranged and any combination of the following:
  - Integrated Chemical Engineering Topics I, 10.301 and permission of instructor
  - Integrated Chemical Engineering Topics II, 10.301 and permission of instructor

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Total Units Beyond the GI Rs Required for SB Degree

Notes
* Alternate prerequisites are listed in the subject description.
(i) Subject may be of particular interest for energy concentration.
(ii) Subject may be of particular interest for biomedical engineering concentration.
(iii) Subject may be of particular interest for materials process and design concentration.
(iv) Subject may be of particular interest for environmental studies concentration.

For an explanation of credit units, or hours, please refer to the online help of the MIT Subject Listing & Schedule, http://student.mit.edu/catalog/index.cgi.