

## ELECTRICAL SCIENCE AND ENGINEERING (COURSE 6-1)

Department of Electrical Engineering and Computer Science (<http://catalog.mit.edu/schools/engineering/electrical-engineering-computer-science/#undergraduatestudytext>)

### Bachelor of Science in Electrical 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 [one subject can be satisfied by 6.805]] 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 [satisfied from among 6.002, 6.003, 6.004, or 6.007 and 18.03, 18.05, or 18.600 in the Departmental Program]	2
Laboratory Requirement (12 units) [satisfied by 6.01, 6.02, or 6.03 together in the Departmental Program]	1
<b>Total GIR Subjects Required for SB Degree</b>	<b>17</b>

#### 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.

Departmental Requirements	Units
6.0001 Introduction to Computer Science Programming in Python	6
18.03 Differential Equations	6-12
or 2.087 Engineering Mathematics: Linear Algebra and ODEs	
6.UAT Oral Communication (CI-M) <sup>1</sup>	9
<i>Select one of the following:</i>	12
6.01 Introduction to EECS via Robotics	
6.02 Introduction to EECS via Communications Networks	

6.03 Introduction to EECS via Medical Technology	
<b>Electrical Engineering Requirements</b>	
6.002 Circuits and Electronics	12
6.003 Signals and Systems	12
6.004 Computation Structures	12
or 6.007 Electromagnetic Energy: From Motors to Solar Cells	
<i>Select three of the following:</i>	36
6.011 Signals, Systems and Inference	
6.012 Microelectronic Devices and Circuits	
6.013 Electromagnetics and Applications	
6.021]] Cellular Neurophysiology and Computing	
6.036 Introduction to Machine Learning	
<b>Elective Subjects <sup>2</sup></b>	
Select two subjects from the list of Advanced Undergraduate Subjects	24-27
Select two subjects from the departmental list of EECS subjects <sup>3</sup>	24
<b>Units in Major</b>	153-165
<b>Unrestricted Electives</b>	51-63
Units in Major That Also Satisfy the GIRs	(24-48)
<b>Total Units Beyond the GIRs Required for SB Degree</b>	<b>180</b>

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

<sup>1</sup> 6.UAR Seminar in Undergraduate Advanced Research is also an acceptable option.

<sup>2</sup> Chosen electives must satisfy each of the following categories: Advanced Departmental Laboratory, Independent Inquiry, and Probability. A subject may count toward more than one category.

<sup>3</sup> See departmental website (<http://www.eecs.mit.edu/academics-admissions/undergraduate-programs>) for list of acceptable EECS subjects.

#### Advanced Undergraduate Subjects

6.023]] Fields, Forces and Flows in Biological Systems	12
6.025]] Medical Device Design (CI-M)	12
6.035 Computer Language Engineering	12
6.047 Computational Biology: Genomes, Networks, Evolution	12
6.061 Introduction to Electric Power Systems	12
6.101 Introductory Analog Electronics Laboratory (CI-M)	12
6.111 Introductory Digital Systems Laboratory	12

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6.115	Microcomputer Project Laboratory (CI-M)	12	6.161	Modern Optics Project Laboratory (CI-M)	12
6.131	Power Electronics Laboratory (CI-M)	12	6.163	Strobe Project Laboratory (CI-M)	12
6.172	Performance Engineering of Software Systems	18	6.170	Software Studio	12
6.175	Constructive Computer Architecture	12	6.172	Performance Engineering of Software Systems	18
6.301	Solid-State Circuits	12	6.175	Constructive Computer Architecture	12
6.302	Feedback System Design	12	6.182	Psychoacoustics Project Laboratory (CI-M)	12
6.602	Fundamentals of Photonics	12	6.302	Feedback System Design	12
6.701	Introduction to Nanoelectronics	12	6.804[J]	Computational Cognitive Science	12
6.717[J]	Design and Fabrication of Microelectromechanical Systems	12	6.806	Advanced Natural Language Processing	12
6.801	Machine Vision	12	6.816	Multicore Programming	12
6.802[J]	Foundations of Computational and Systems Biology	12	6.819	Advances in Computer Vision	12
6.803	The Human Intelligence Enterprise	12	6.837	Computer Graphics	12
6.804[J]	Computational Cognitive Science	12	<b>Independent Inquiry Subjects</b>		
6.806	Advanced Natural Language Processing	12	6.035	Computer Language Engineering	12
6.813	User Interface Design and Implementation	12	6.047	Computational Biology: Genomes, Networks, Evolution	12
6.814	Database Systems	12	6.100	Electrical Engineering and Computer Science Project	12
6.815	Digital and Computational Photography	12	6.111	Introductory Digital Systems Laboratory	12
6.816	Multicore Programming	12	6.1151	Microcomputer Project Laboratory - Independent Inquiry (CI-M)	15
6.819	Advances in Computer Vision	12	6.129[J]	Biological Circuit Engineering Laboratory (CI-M)	12
6.837	Computer Graphics	12	6.1311	Power Electronics Laboratory - Independent Inquiry (CI-M)	15
6.905	Large-scale Symbolic Systems	12	6.141[J]	Robotics: Science and Systems (CI-M)	12
<b>Advanced Departmental Laboratory Subjects</b>			6.161	Modern Optics Project Laboratory (CI-M)	12
6.025[J]	Medical Device Design (CI-M)	12	6.163	Strobe Project Laboratory (CI-M)	12
6.035	Computer Language Engineering	12	6.170	Software Studio	12
6.047	Computational Biology: Genomes, Networks, Evolution	12	6.172	Performance Engineering of Software Systems	18
6.073[J]	Creating Video Games	12	6.182	Psychoacoustics Project Laboratory (CI-M)	12
6.101	Introductory Analog Electronics Laboratory (CI-M)	12	6.805[J]	Foundations of Information Policy (CI-M)	12
6.111	Introductory Digital Systems Laboratory	12	6.806	Advanced Natural Language Processing	12
6.115	Microcomputer Project Laboratory (CI-M)	12	6.811[J]	Principles and Practice of Assistive Technology	12
6.129[J]	Biological Circuit Engineering Laboratory (CI-M)	12	6.819	Advances in Computer Vision	12
6.131	Power Electronics Laboratory (CI-M)	12			
6.141[J]	Robotics: Science and Systems (CI-M)	12			
6.152[J]	Micro/Nano Processing Technology (CI-M)	12			

6.905	Large-scale Symbolic Systems	12
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**Probability Subjects**

6.008	Introduction to Inference	12
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6.041A	Introduction to Probability I	6
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18.05	Introduction to Probability and Statistics	12
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18.600	Probability and Random Variables	12
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