



Notes

- Grey box = either semester
- \longrightarrow = prerequisite; \dashrightarrow = corequisite
- Students planning to **study abroad** sophomore 2 should take EK 301 in sophomore 1.
- Students must complete 48 credits of upper-division program coursework (not including Hub or writing).
- See back for Hub Unit Legend

Hub Electives: must include all Hub requirements below to fulfill degree requirements:

- 1. Philosophical Inquiry & Life's Meanings (PLM)
 - 2. Aesthetic Exploration (AEX)
 - 3. Historical Consciousness (HCO)
 - 4. Social Inquiry (SO1 or SO2)
 - 5. Individual & Community (IIC)
 - 6. First Global Citizenship & Intercultural Literacy (GCI)
 - 7. Second Global Citizenship & Intercultural Literacy (GCI)
 - 8. Ethical Reasoning (ETR)
- Total of at least 16 credits

REQUIREMENTS

Electrical Engineering (EE) majors are required to complete a minimum of 131 credits as detailed on the Program Planning Sheet on the other side of this page.

HUB ELECTIVES

All students are required to complete a total of 26 Hub requirements. Eighteen of these Hub requirements are incorporated into courses required for the EE BS degree. The remaining eight Hub requirements must be satisfied through four (or more) Hub Electives that incorporate the following seven Hub areas: Philosophical Inquiry; Aesthetic Exploration; Historical Consciousness; Social Inquiry; Individual in Community; Ethical Reasoning; Global Citizenship & Intercultural Literacy (2X). Search for courses that fulfill specific combinations of Hub requirements at: <https://www.bu.edu/phpbin/course-search/>

NATURAL SCIENCE ELECTIVE EE majors complete one Natural Science Elective (4 credits) from the following list:

CAS AS 202: Principles of Astronomy 1	CAS BI 108: Biology 2	CAS CH 131: Gen Chem for the Eng Sci
CAS BI 107: Biology 1	CAS CH 101: General Chemistry 1	CAS PY 451: Quantum Physics 1

EE CORE ELECTIVES EE majors complete three EE Core Electives (12 credits) chosen from the courses listed in the **Systems, Electronics and Electrophysics** areas. Courses must be selected from at least two of the three areas, and no more than two courses can be from any single area:

SYSTEMS

ENG EC 402 Control System	ENG EC 508 Wireless Communication	ENG EC 523 Deep Learning
ENG EC 414 Machine Learning	ENG EC 515 Digital Communication	ENG EC 524 Optimization Theory & Methods
ENG EC 415 Software Radios	ENG EC 516 Digital Signals Processing	ENG EC 525 Optimization for Machine Learning
ENG EC 418 Intro to Reinforcement Learning	ENG EC 517 Intro to Information Theory	ENG EC 534 Discrete Stochastic Models
ENG EC 501 Dynamic System Theory	ENG EC 519 Speech Processing by Humans & Machn	ENG EC 541 Computer Communication Networks
ENG EC 503 Intro to Learning from Data	ENG EC 520 Digital Image Processing & Comm	
ENG EC 505 Stochastic Processes	ENG EC 522 Computational Optical Imaging	

ELECTRONICS

ENG EC 412 Analog Electronics	ENG EC 580 Analog VLSI Circuit Design
ENG EC 417 Electric Energy Systems	ENG EC 582 RF/Analog IC Design
ENG EC 571 Digital VLSI Circuit Design	ENG EC 583 Power Electronics for Energy Systems

ELECTROPHYSICS

ENG EC 417 Electric Energy Systems	ENG EC 562 Engineering Optics	ENG EC 575 Semiconductor Devices
ENG EC 456 Electromagnetic Systems II	ENG EC 565 Electromagnetic Energy Trans	ENG EC 577 Electronic Optical & Magnetic Prop Mtls
ENG EC 471 Physics of Semiconductor Devices	ENG EC 568 Optical Fibers & Wave Guides	ENG EC 578 Fabrication Tech for Integrated Circuits
ENG EC 543 Sustainable Power Systems	ENG EC 570 Lasers & Applications	ENG EC 579 Nano/microelectronic Device Technology
ENG EC 555 Intro to Bio Optics	ENG EC 572 Computational Methods in Mtls Sci	ENG EC 583 Power Electronics for Energy Systems
ENG EC 556 Optical Spectroscopic Imaging	ENG EC 573 Solar Energy Systems	ENG EC 591 Photonics Laboratory I
ENG EC 560 Intro to Photonics	ENG EC 574 Physics of Semiconductor Materials	ENG EK 481 Intro to Nanotechnology

COMPUTER ELECTIVES EE majors complete one Computer Elective (4 credits) from the following list:

ENG EC 327 Intro Software Engineering
 ENG EC 413 Computer Organization
 ENG EC 441 Introduction to Computer Networking

TECHNICAL ELECTIVES EE majors complete three Technical Elective courses (12 credits) from the following:

Acceptable courses include all **EC** courses and **ENG BE 209**. Additionally, all **ENG BE, EK** and **ME** courses at the 300-level and above, except for 600-level courses and EK 409, are acceptable as Technical Electives (no more than 4 credits of ENG EC 451 can be used).

Approved Courses Outside Engineering that fulfill a Technical Elective:

CAS AS 414 Solar and Space Physics	CAS MA 531 Computability and Logic	<u>No more than two of the following:</u> QST SI 480 The Business of Technology Innovation QST SI 482 Technology and its Commercialization HUB XC 433 D1 – The Art and Sci of Tech Consulting
CAS CS 440 Intro to Artificial Intelligence	CAS MA 541 Modern Algebra 1	
CAS CS 480 Introduction to Computer Graphics	CAS MA 583 Introduction to Stochastic Processes	
CAS CS 585 Image and Video Computing	CAS PY 451 Quantum Physics 1	
CAS MA 511 Introduction to Analysis	CAS PY 452 Quantum Physics 2	
CAS MA 528 Introduction to Modern Geometry		

Hub Unit Legend:

QR1 = Quantitative Reasoning 1	WRI = Writing, Research & Inquiry	RIL = Research and Information Literacy
QR2 = Quantitative Reasoning 2	WIN = Writing-Intensive Course	TWC = Teamwork/Collaboration
SI1 = Scientific Reasoning 1	OSC = Oral and/or Signed Communication	CRI = Creativity/Innovation
SI2 = Scientific Reasoning 2	DME = Digital/Multimedia Expression	
FYW = First-Year Writing Seminar	CRT = Critical Thinking	

Notes:

- Any requirement satisfied via AP/IB earns a **maximum of one Hub requirement** and students may need to replace missing Hub requirements.
- Any requirement satisfied via transfer earns **zero Hub requirements** and students may need to replace missing Hub requirements.
- For each of the following sets of courses, only **one** course can be taken for credit in each set due to the overlap of material:
 - ENG ME 403, ENG ME 404, ENG EC 402, ENG BE 404
 - ENG ME 303, ENG BE 436
 - ENG ME 306, ENG BE 425
 - ENG EK 103, CAS MA 142, CAS MA 242
 - ENG BE 403, ENG EC 401
 - ENG EK 381, CAS MA 381, CAS MA 581