



**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 units 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 units

**REQUIREMENTS**

Electrical Engineering (EE) majors are required to complete a minimum of 131 units 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 units) 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 units) 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 505 Stochastic Processes                | ENG EC 522 Computational Optical Imaging     |
| ENG EC 414 Machine Learning                | ENG EC 508 Wireless Communication              | ENG EC 523 Deep Learning                     |
| ENG EC 415 Software Radios                 | ENG EC 516 Digital Signal Processing           | ENG EC 524 Optimization Theory & Methods     |
| ENG EC 418 Intro to Reinforcement Learning | ENG EC 517 Intro to Information Theory         | ENG EC 525 Optimization for Machine Learning |
| ENG EC 501 Dynamic System Theory           | ENG EC 519 Speech Processing by Humans & Machn | ENG EC 534 Discrete Stochastic Models        |
| ENG EC 503 Intro to Learning from Data     | ENG EC 520 Digital Image Processing & Comm     | ENG EC 541 Computer Communication Networks   |

**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 Fourier Optics in Engineering         | ENG EC 577 Electronic Optical & Magnetic Prop Mtls  |
| ENG EC 456 Electromagnetic Systems II       | ENG EC 565 Intro to Electromagnetics & Photonics | ENG EC 578 Fabrication Tech for Integrated Circuits |
| ENG EC 471 Physics of Semiconductor Devices | ENG EC 568 Optical Fibers & Wave Guides          | ENG EC 579 Nano/microelectronic Device Technology   |
| ENG EC 491 Engineering with Light           | ENG EC 570 Lasers & Applications                 | ENG EC 583 Power Electronics for Energy Systems     |
| ENG EC 543 Sustainable Power Systems        | ENG EC 572 Computational Methods in Mtls Sci     | ENG EC 585 Quantum ENG & Tech                       |
| ENG EC 555 Intro to Bio Optics              | ENG EC 573 Solar Energy Systems                  | ENG EC 591 Photonics Laboratory I                   |
| ENG EC 556 Optical Spectroscopic Imaging    | ENG EC 574 Physics of Semiconductor Materials    | ENG EK 481 Intro to Nanotechnology                  |
| ENG EC 560 Intro to Photonics               | ENG EC 575 Semiconductor Devices                 |   |

**COMPUTER ELECTIVES** EE majors complete one Computer Elective (4 units) 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 units) 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, are acceptable as Technical Electives (no more than 4 units 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 583 Introduction to Stochastic Processes | <b>No more than two of the following:</b><br>QST SI 480 The Business of Technology Innovation<br>QST SI 482 Technology and its Commercialization<br>HUB XC 433 D1 Art&Sci Tech Cnsltng (F24 & Sp25)<br>HUB XC 438 The Art and Sci of Tech Consulting |
| CAS CS 440 Intro to Artificial Intelligence  | CAS PY 451 Quantum Physics 1                    |  |
| CAS CS 480 Introduction to Computer Graphics | CAS PY 452 Quantum Physics 2                    |  |
| CAS CS 585 Image and Video Computing         | CDS DS 310: Data Mechanics                      |  |
| CAS MA 511 Introduction to Analysis          | CDS DS 340: Intro to Machine Learning and AI    |  |
| CAS MA 528 Introduction to Modern Geometry   | CDS DS 453: Crypto for Data Science             |  |
| CAS MA 531 Computability and Logic           | CDS DS 563: Algo Techniques for Taming Big Data |  |
| CAS MA 541 Modern Algebra 1                  |   |  |

**Notes:**

- Any requirement satisfied via AP/IB fulfills a **maximum of one Hub requirement** and students may need to replace missing Hub requirements.
- Any requirement satisfied via transfer fulfills **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. Students should **only** take one of the corresponding courses and should take the ENG option unless otherwise advised:
  - 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 242, CAS MA 442
  - ENG BE 403, ENG EC 401
  - ENG EK 381, CAS MA 581
  - ENG BE 428, ENG BE 478
  - CAS PY 313, CAS PY 314, CAS PY321 & 322