



**Notes**

- Grey box = either semester
- —> = prerequisite; - - -> = 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 areas below to fulfill degree requirements**

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

**REQUIREMENTS**

Computer Engineering (CE) majors are required to complete a minimum of 133 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 units. Eighteen of these Hub units are included in courses required for the CE BS degree. The remaining eight Hub units 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 units at: <https://www.bu.edu/phpbin/course-search/>

**CORE ELECTIVE** CE majors complete two Core Electives (8 credits) from the following list:

ENG EC 401 Signals and Systems	ENG EC 440 Introduction to Operating Systems	ENG EC 444 Smart and Connected Systems
ENG EC 410 Introduction to Electronics	ENG EC 441 Introduction to Computer Networking	

**COMPUTER ENGINEERING ELECTIVE** CE majors complete two Computer Eng Elective courses (8 credits) from the following list:

ENG EC 440 Introduction to Operating Systems	ENG EC 535 Introduction to Embedded Systems	CAS CS 511 Formal Methods
ENG EC 441 Intro to Computer Networking	ENG EC 541 Computer Communications Networks	CAS CS 520 Programming Languages
ENG EC 444 Smart & Connected Systems	ENG EC 544 Network Physical World	CAS CS 525 Compiler Design
ENG EC 447 Software Design	ENG EC545 Cyber Physical Systems	CAS CS 530 Advanced Algorithms
ENG EC 504 Advanced Data Structures	ENG EC 551 Adv Digital Design w/ Verilog & FPGA	CAS CS 535 Complexity Theory
ENG EC 512 Enterp Client-Server Softwr Sys Des	ENG EC 552 Computational Synthetic Biology	CAS CS 538, Fundamentals of Cryptography
ENG EC 513 Computer Architecture	ENG EC 571 Digital VLSI Circuit Design	CAS CS 548 Cryptography
ENG EC 521 CyberSecurity	CAS CS 320 Concepts of Programming Languages	CAS CS 552 Operating Systems
ENG EC 526 Parallel Prog for High Perf & Big Data	CAS CS 350 Fundamentals of Computing Systems	CAS CS 558 Computer Network Security
ENG EC 527 High Perf Prog w/ Multicore & GPUs	CAS CS 410 Advanced Software Systems	CAS CS 562 Database Applications
ENG EC 528 Cloud Computing	CAS CS 411 Software Engineering	CAS CS 565 Data Mining
ENG EC530 Software Engineering Principles	CAS CS 505 Natural language processing	CAS CS 568 Applied Cryptography

**EE BREADTH ELECTIVE** CE majors complete one EE Breadth Elective course (4 credits) from the following list:

ENG EC 401 Signals and Systems	ENG EC 515 Digital Communication	ENG EC 569 Intro to Subsurface Imaging
ENG EC 402 Control Systems	ENG EC 516 Digital Signals Processing	ENG EC 570 Lasers and Applications
ENG EC 410 Intro to Electronics	ENG EC 517 Intro to Information Theory	ENG EC 572 Computational Methods in Mtls Sci
ENG EC 412 Analog Electronics	ENG EC 519 Speech Processing	ENG EC 573 Solar Energy Systems
ENG EC 414 Machine Learning	ENG EC 520 Digital Image Processing	ENG EC 574 Physics of Semiconductor Materials
ENG EC 415 Software Radios	ENG EC 522 Computational Optical Imaging	ENG EC 575 Semiconductor Devices
ENG EC 417 Electric Energy Systems	ENG EC 523 Deep Learning	ENG EC 577 Electr Optical & Magnetic Prop of Materials
ENG EC 418 Intro to Reinforcement Learning	ENG EC 524 Optimization Theory and Methods	ENG EC 578 Fab Technology for Integrated Circuits
ENG EC 455 Electromagnetic Systems I	ENG EC 543 Sustainable Power Systems	ENG EC 579 Nano/Micro-Electro Device Tech
ENG EC 456 Electromagnetic Systems II	ENG EC 555 Intro to Biomedical Optics	ENG EC 580 Analog VLSI Circuit Design
ENG EC 471 Physics of Semiconductor Devices	ENG EC 556 Optical Spectroscopic Imaging	ENG EC 582 RF/Analog IC design Fundamentals
ENG EC 501 Dynamic System Theory	ENG EC 560 Intro to Photonics	ENG EC 583 Power Electronics for Energy Systems
ENG EC 503 Introduction to Learning from Data	ENG EC 562 Engineering Optics	ENG EC 591 Photonics Lab I
ENG EC 505 Stochastic Processes	ENG EC 565 Electromagnetic Fundamentals	ENG EK 481 Intro to Nanotechnology
ENG EC 508 Wireless Communication	ENG EC 568 Optical Fibers and Wave Guides	

**TECHNICAL ELECTIVES** (see **Notes** below) CE majors complete three Technical Elective courses (12 credits) from the following:

Any course listed as **Computer Engineering Elective**

**ENG BE 209** and any **ENG EC, BE, EK** or **ME** course at the 300-level or above, except for 600-level courses, 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 528 Introduction to Modern Geometry	CAS PY 451 Quantum Physics 1
CAS CS 440 Intro to Artificial Intelligence	CAS MA 531 Computability and Logic	CAS PY 452 Quantum Physics 2
CAS CS 480 Introduction to Computer Graphics	CAS MA 541 Modern Algebra 1	QST SI 480 The Business of Technology Innovation
CAS CS 585 Image and Video Computing	CAS MA 583 Introduction to Stochastic Processes	QST SI 482 Technology and its Commercialization
CAS MA 511 Introduction to Analysis	CAS PY 313/314 Waves and Modern Physics	

**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 can earn a **maximum of one Hub unit** and may require students to replace the Hub units missed.
- Any requirement satisfied via transfer earns **zero Hub units** and may require students to replace the Hub units missed.
- 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