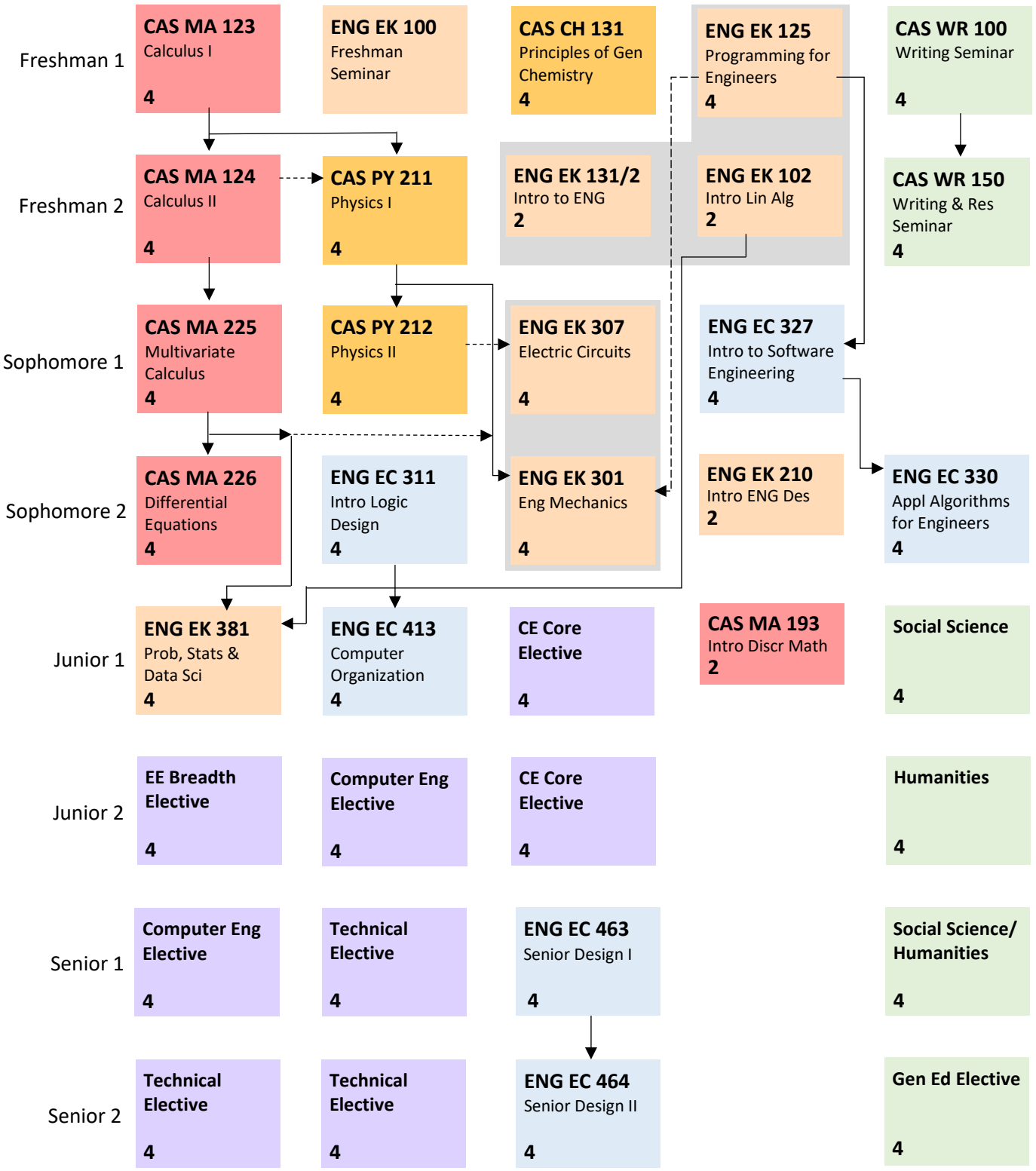
College of Engineering — Computer Engineering – 2021 (132 credits)



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 social science/humanities or writing).

General Education Electives Checklist

- ☐ 1. CAS WR 100
- ☐ 2. CAS WR 150
- ☐ 3. One Social Science course
- ☐ 4. One Humanities course
- ☐ 5. One Social Science or Humanities course
- ☐ 6. One General Education elective course
- ☐ 7. Total of at least 24 credits

6/13/2019

BU College of Engineering

Computer Engineering
2020 – 2021 (132 credits)

REQUIREMENTS
Computer Engineering majors are required to complete a minimum of 132 credits as detailed on the Program Planning Sheet on the other side of this page.

GENERAL EDUCATION
For a list of specific courses that satisfy the Social Science, Humanities and General Education Elective, please go to the College of Engineering Undergraduate Requirements website at: http://www.bu.edu/eng/current-students/ugrad/requirements/.

CORE ELECTIVE
Computer Engineering majors complete two Core Electives from the following list:

ENG EC 401 Signals and Systems
ENG EC 410 Introduction to Electronics
ENG EC 440 Introduction to Operating Systems
ENG EC 441 Introduction to Computer Networking
ENG EC 444 Smart and Connected Systems
ENG EC 450 Microprocessors*

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

ENG EC 440 Introduction to Operating Systems
ENG EC 441 Intro to Computer Networking
ENG EC 444 Smart & Connected Systems
ENG EC 447 Software Design
ENG EC 504 Advanced Data Structures
ENG EC 512 Enterp Client-Server Softwr Sys Des
ENG EC 513 Computer Architecture
ENG EC 521 CyberSecurity
ENG EC 526 Parallel Prog for High Perf & Big Data
ENG EC 527 High Perf Prog with Multicore & GPUs
ENG EC 528 Cloud Computing
ENG EC 535 Introduction to Embedded Systems
ENG EC 541 Computer Communications Networks
ENG EC 544 Network Physical World
ENG EC 551 Adv Digital Design w/ Verilog & FPGA
ENG EC 571 Digital VLSI Circuit Design
CAS CS 320 Concepts of Programming Languages
CAS CS 350 Fundamentals of Computing Systems
CAS CS 410 Advanced Software Systems
CAS CS 411 Software Engineering
Any CAS CS 500-level course
(CAS CS 591 – by petition only)

EE BREADTH ELECTIVE
Computer Engineering majors complete one EE Breadth Elective course from the following list:

ENG EC 401 Signals and Systems
ENG EC 402 Control Systems
ENG EC 410 Intro to Electronics
ENG EC 412 Analog Electronics
ENG EC 414 Machine Learning
ENG EC 415 Communication Systems
ENG EC 416 Intro Digital Signal Processing*
ENG EC 417 Electric Energy Systems
ENG EC 455 Electromagnetic Systems I
ENG EC 456 Electromagnetic Systems II
ENG EC 471 Physics of Semiconductor Devices
ENG EC 501 Dynamic System Theory
ENG EC 503 Introduction to Learning from Data
ENG EC 505 Stochastic Processes
ENG EC 508 Wireless Communication
ENG EC 515 Digital Communication
ENG EC 516 Digital Signals Processing
ENG EC 517 Intro to Information Theory
ENG EC 519 Speech Processing
ENG EC 520 Digital Image Processing
ENG EC 522 Computational Optical Imaging
ENG EC 523 Deep Learning
ENG EC 524 Optimization Theory and Methods
ENG EC 543 Sustainable Power Systems
ENG EC 555 Intro to Biomedical Optics
ENG EC 560 Intro to Photonics
ENG EC 562 Engineering Optics
ENG EC 565 Electromagnetic Fundamentals
ENG EC 568 Optical Fibers and Wave Guides
ENG EC 569 Intro to Subsurface Imaging
ENG EC 570 Lasers and Applications
ENG EC 573 Solar Energy Systems
ENG EC 574 Physics of Semiconductor Materials
ENG EC 575 Semiconductor Devices
ENG EC 577 Electr Optical & Magnetic Prop of Materials
ENG EC 578 Fab Technology for Integrated Circuits
ENG EC 579 Nano/Micro-Electro Device Tech
ENG EC 580 Analog VLSI Circuit Design
ENG EC 582 RF/Analog IC design Fundamentals
ENG EC 583 Power Electronics for Energy Systems
ENG EC 591 Photonics Lab I
ENG EK 481 Intro to Nanotechnology

TECHNICAL ELECTIVES (see **Notes** below)
Computer Engineering majors complete three Technical Elective courses (12 credits):

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.

Pre-Approved Courses Outside Engineering that fulfill a Technical Elective:

CAS AS 414 Solar and Space Physics
CAS CS 440 Intro to Artificial Intelligence
CAS CS 480 Introduction to Computer Graphics
CAS CS 585 Image and Video Computing
CAS MA 511 Introduction to Analysis
CAS MA 528 Introduction to Modern Geometry
CAS MA 531 Computability and Logic
CAS MA 541 Modern Algebra 1
CAS MA 583 Introduction to Stochastic Processes
CAS PY 313 Waves and Modern Physics
CAS PY 451 Quantum Physics 1
CAS PY 452 Quantum Physics 2
QST SI 480 The Business of Technology Innovation
QST SI 482 Technology and its Commercialization

Notes:
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:

(1) ENG ME 403, ENG ME 404, ENG BE 402*, ENG EC 402, ENG BE 404
(2) ENG ME 303, ENG BE 436
(3) ENG EK 102*, ENG EK 103, CAS MA 142, CAS MA 242
(4) ENG BE 401*, ENG BE 403, ENG EC 401
(5) ENG ME 366, ENG EC 381*, ENG EK 381, ENG BE 200*
(6) ENG ME 460, ENG ME 560
(7) ENG EK 156*, ENG ME 358
(8) ENG ME 357, ENG ME 359*

*indicates course no longer offered.