Only students starting the major during the 2024-2025 academic year follow this flowchart.

Brigham Young University
Computer Engineering Flowchart

Note: This flowchart is a graphical presentation of the requirements in the 2024-2025 catalog. Please refer to the catalog for exact requirements.

September 3, 2024

ECEn Core 43.5 Credits

Supporting Courses 34.5 Credits

Technical Electives 12 Credits

Complete requirements in advanced core electives. Choose remaining courses from additional advanced core electives, other ECEn technical electives, or CS electives as indicated.

Notes:
- Before enrolling in ECEn 240, you must pass Phy 220, Math 113, and CS 111 with an average grade of B or better.
- Before taking any course, all prerequisite courses must be completed first with a grade of C- or better.
- All classes in the supporting (green) and EE-core (blue) sections must be taken to graduate.
Computer Engineering Program Requirements

Requirement 1: Complete 23 courses.
CS 111 – Introduction to Computer Science 3.0
CS 235 – Data Structures and Algorithms 3.0
CS 236 – Discrete Structures 3.0
CS 240 – Advanced Programming Concepts 4.0
EC EN 191 – New Student Seminar 0.5
EC EN 192 – Freshman Project 1.0
EC EN 224 – Introduction to Computer Systems 3.0
EC EN 225 – Computer Systems Laboratory 1.0
EC EN 240 – Circuit Analysis and Laboratory 4.0
EC EN 320 – Digital Systems 4.0
EC EN 330 – Introduction to Embedded Systems Programming 4.0
EC EN 340 – Electronic Circuit Design 1 4.0
EC EN 380 – Signals and Systems 4.0
EC EN 390 – Junior Team Design Project 3.0
EC EN 391 – Junior Seminar 0.5
EC EN 475 – Capstone Design 1 3.0
EC EN 476 – Capstone Design 2 3.0
MATH 112 – Calculus 1 4.0
MATH 113 – Calculus 2 4.0
MATH 213 – Elementary Linear Algebra 2.0
MATH 215 – Computational Linear Algebra 1.0
MATH 334 – Ordinary Differential Equations 3.0
PHSCS 121 – Introduction to Newtonian Mechanics 3.0
PHSCS 220 – Introduction to Electricity and Magnetism 3.0
STAT 201 – Statistics for Engineers and Scientists 3.0

Requirement 3: Complete at least 8.0 hours from the following.
EC EN 423 – Computer Organization 4.0
EC EN 426 – Computer Networking 4.0
EC EN 427 – Embedded Systems 4.0
EC EN 433 – Introduction to Robotics and Autonomy 4.0

Requirement 4: Complete at least 4.0 hours from the following:
C S 312 – Algorithm Design & Analysis 3.0
C S 340 – Software Design 3.0
C S 345 – Operating Systems Design 3.0
C S 428 – Software Engineering 3.0
C S 431 – Algorithmic Languages and Compilers 3.0
C S 452 – Database Modeling Concepts 3.0
C S 455 – Computer Graphics 3.0
C S 456 – Mobile & Ubiquitous HCI 3.0
C S 460 – Computer Communications and Networking 3.0
C S 462 – Distributed System Design 3.0
C S 465 – Computer Security 3.0
C S 470 – Introduction to Artificial Intelligence 3.0
C S 472 – Introduction to Machine Learning 3.0
C S 474 – Deep learning 3.0
EC EN 360 – Electromagnetic Fields and Waves 4.0
EC EN 412 – Biomedical Instrumentation 4.0
EC EN 423 – Computer Organization 4.0
EC EN 426 – Computer Networking 4.0
EC EN 427 – Embedded Systems 4.0
EC EN 445 – Introduction to Mixed-Signals VLSI 4.0
EC EN 446 – Power Electronics 4.0
EC EN 450 – Introduction to Semiconductor Devices 3.0
EC EN 452 – Experiments in Integrated Circuit Development 1.0
EC EN 462 – Electromagnetic Radiation and Propagation 2.0
EC EN 464 – Wireless Communication Circuits 2.0
EC EN 466 – Introduction to Optical Engineering 2.0
EC EN 471 – Machine Learning: Foundations and Applications 4.0
EC EN 483 – Design of Control Systems 4.0
EC EN 485 – Introduction to Digital Communication Theory 4.0
EC EN 487 – Introduction to Discrete-Time Signal Processing 4.0
IT&C 567 – Cybersecurity & Pen Test 3.0
IT&C 585 – Cryptography Implementation 3.0
MATH 314 – Calculus of Several Variables 3.0

Requirement 2: Complete 2 options.
Option 2.1: Complete 1 course.
CHEM 105 – General College Chemistry 1 with Lab (Integrated) 4.0
CHEM 111 – Principles of Chemistry 1 4.0

Option 2.2: Complete 1 course. Note: WRTG 312 recommended.
WRTG 312 – Persuasive Writing 3.0
WRTG 316 – Technical Communication 3.0