ECE Program Requirements

General Education Program (30 credits)

- ENMG 400: Engineering Economy
- Arabic course
- ENGL 206: Technical English
- One other English course (excluding ENGL 204 and 208)
- Two social science courses
- Three humanities courses
- ENMG 504: Ethics course

ECE students must select humanities/social science elective courses from the approved GE program course list on the Registrar's homepage.

Mathematics (18 credits)

- MATH 201: Calculus and Analytic Geometry III
- MATH 202: Differential Equations
- MATH 211: Discrete Structures
- MATH 218: Elementary Linear Algebra with Applications or MATH 219: Linear Algebra I
- STAT 230: Introduction to Probability and Random Variables

One of
- MATH 210: Introduction to Analysis
- MATH 224: Fourier Series and Applications
- MATH 227: Introduction to Complex Analysis
- MATH 251: Numerical Computing
- MATH 261: Number Theory

Sciences (12 credits)

- PHYS 210: Introductory Physics II
- PHYS 210L: Introductory Physics Laboratory II
- CHEM 201: Chemical Principles or CHEM 202: Introduction to Environmental Chemistry
- CHEM 203: Introductory Chemical Techniques or CHEM 205: Introductory Chemistry Laboratory
- One additional science elective. Refer to Appendix D for the list of approved science electives.

**ECE Core Courses (36 credits)**

Refer to Appendix E for the ECE course descriptions.

- EECE 200: Introduction to Electrical and Computer Engineering
- EECE 210: Electric Circuits
- EECE 230: Introduction to Programming
- EECE 290: Analog Signal Processing
- EECE 310: Electronics
- EECE 311: Electronic Circuits
- EECE 320: Digital Systems Design
- EECE 321: Computer Organization
- EECE 330: Data Structures and Algorithms
- EECE 340: Signals and Systems
- EECE 370: Electric Machines and Power Fundamentals
- EECE 380: Engineering Electromagnetics

**ECE Laboratories (3 credits)**

- EECE 310L: Electric Circuits Laboratory
- EECE 321L: Computer Organization Laboratory
- EECE 410L: System Integration Laboratory

**ECE Restricted Electives (12 credits)**

Four restricted elective courses from the list of ECE Focus Area Courses with no more than three courses from any given area.
**ECE Focus Area Courses**

**Area 1: Computer Hardware Systems**
- EECE 412: Integrated Circuits
- EECE 421: Computer Architecture
- EECE 422: Parallel Computer Architecture and Programming
- EECE 425: Embedded Microprocessor System Design

**Area 2: Power and Energy Systems**
- EECE 471: Fundamentals of Power Systems Analysis
- EECE 473: Power Electronics
- EECE 474: Electric Drives

**Area 3: Control and Intelligent Systems**
- EECE 460: Control Systems
- EECE 461: Instrumentation
- EECE 463: Artificial Intelligence for Control Systems

**ECE Lab Electives (2 credits)**
- One Restricted Elective Lab
  - **Area 1: Computer Hardware Systems**
    EECE412L: VLSI Computer Aided Design Laboratory

  - **Area 2: Power and Energy Systems**
    EECE 470L: Electric Machines Laboratory
    EECE 471L: Power Systems Laboratory
    EECE 473L: Power Electronics and Drives Laboratory

  - **Area 3: Control and Intelligent Systems**
    EECE 460L: Control System Laboratory
    EECE 462L: Industrial Control Laboratory

- One Additional Elective Lab
Undergraduate Elective courses (6 credits)

- Any EECE 400 level course

Electives (18 credits)

- Six courses, at least two of which must be EECE, subject to approval of adviser. No more than two technical electives may be taken from the same department and/or program. For the list of pre-approved technical electives, refer to Appendix D.

Approved Experience

- EECE 500

Final Year Project (6 credits)

EECE 501 and EECE 502