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To earn a B.S., you must complete all College and University requirements. For a complete list: www.catalog.ucr.edu.

** ENGLISH COMPOSITION**

A C or better is required in three quarters of English Composition courses to satisfy the graduation requirement. ENGR 180W fulfills the third quarter of English Composition.

** BREADTH REQUIREMENTS**

For an approved list of Breadth courses: http://student.engr.ucr.edu/policies/requirements/breadth.html.

- Humanities: (3 courses)
  - A. World History: __________
  - B. Fine Arts, Lit., Phil. or Rlst: __________
  - C. History of Science: __________

- Social Sciences: (3 courses)
  - A. Econ. or Posc.:: __________
  - B. Anth., Psyc, or Soc.: __________
  - C. Additional Social Science: __________

- Biological Science __________

- Ethnicity: (1 course)
  1. __________

- ABET Upper Division Depth: (2 courses)
  1. __________
  2. __________

** TECHNICAL ELECTIVES**

Please note that Technical Electives may be offered throughout the Academic Year. Consult with your Academic Advisor about potential offerings. See approved technical electives on back.

Course Plan is subject to change.
### Electrical Engineering Technical Electives and Focus Areas

You must complete 5 courses (at least 20 units) of Technical Elective coursework chosen from the list below. It is recommended that at least 3 courses are chosen from one Focus Area. Courses marked with * are required course for a focus area. Units are listed in ().

#### Intelligent Systems (IS)
- **EE 146**  
  Computer Vision (4)
- **EE 128**  
  Data Acquisition, Instrum., & Process Control (4)
- **EE 140**  
  Computer Visualization (4)
- **EE 144**  
  Introduction to Robotics (4)
- **EE 152**  
  Image Processing (4)
- **CS 122A**  
  Intermediate Embedded and Real-time Systems (5)
- **CS 130**  
  Computer Graphics (4)

#### Control and Robotics (CR)
- **EE 151**  
  Introduction to Digital Control (4)
- **EE 128**  
  Data Acquisition, Instrum., & Process Control (4)
- **EE 144**  
  Introduction to Robotics (4)
- **EE 146**  
  Computer Vision (4)
- **EE 152**  
  Image Processing (4)
- **CS 122A**  
  Intermediate Embedded and Real-time Systems (5)

#### VLSI Design and Systems (VLSI)
- **EE 134**  
  Digital Integrated Circuit Layout and Design (4)
- **EE 128**  
  Data Acquisition, Instrum., & Process Control (4)
- **EE 133**  
  Solid-State Electronics (4)
- **EE 135**  
  Analog Integrated Circuit Layout and Design (4)
- **EE 136**  
  Semiconductor Device Processing (4)
- **CS 161**  
  Design and Architecture of Computer Systems (4)
- **CS 168**  
  Introduction to VLSI Design (5)

#### Nanotechnology, Advanced Materials, and Devices (NMDC)
- **EE 133**  
  Solid-State Electronics (4)
- **EE 117**  
  Electromagnetics II (4)
- **EE 134**  
  Digital Integrated Circuit Layout and Design (4)
- **EE 135**  
  Analog Integrated Circuit Layout and Design (4)
- **EE 136**  
  Semiconductor Device Processing (4)
- **EE 137**  
  Intro to Semiconductor Optoelectronic Devices (4)
- **EE 138**  
  Electronic Properties of Materials (4)
- **EE 139**  
  Magnetic Materials (4)
- **EE 160**  
  Fiber Optic Communication Systems (4)

#### Computer Engineering (CE)
- **EE 160**  
  Fiber Optic Communication Systems (4)
- **EE 117**  
  Electromagnetics II (4)
- **EE 128**  
  Data Acquisition, Instrum., & Process Control (4)
- **EE 152**  
  Image Processing (4)
- **EE 160**  
  Fiber Optic Communication Systems (4)
- **CS 122A**  
  Intermediate Embedded and Real-time Systems (5)
- **CS 161**  
  Design and Architecture of Computer Systems (4)

*Required course for the Focus Area

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* EE 134  
  Digital Integrated Circuit Layout and Design (4)

* EE 128  
  Data Acquisition, Instrum., & Process Control (4)

* EE 133  
  Solid-State Electronics (4)

* EE 135  
  Analog Integrated Circuit Layout and Design (4)

* EE 136  
  Semiconductor Device Processing (4)

* CS 161  
  Design and Architecture of Computer Systems (4)

* CS 168  
  Introduction to VLSI Design (5)

* Refer to the Computer Engineering major course plan and catalog listing