# ELECTRICAL ENGINEERING MAJOR REQUIREMENTS

## 2018-19

ELECTRICAL AND COMPUTER ENGINEERING STUDENT AFFAIRS OFFICE | JACOBS HALL 2701 & 2702 | ECE.UCSD.EDU

- Students must **pick one Depth** to complete the EE Major requirements. Due to six different college requirements, only **major requirements** are listed below.
- Students must speak to their college advisor for questions regarding General Education and University of California requirements.
- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C– or better**.

## ELECTRONIC CIRCUITS & SYSTEMS

### Lower Division (72 units)
- **MATH** 18, 20A, 20B, 20C, 20D, 20E
- **PHYS** 2A, 2B, 2C, 2D
- **CHEM** 6A
- **ECE** 5, 15, 25, 30, 35, 45, 65

### Upper Division (68 units)
- **Breadth:**
  - **ECE** 100, 101, 102, 103, 107, 109
- **Depth:**
  - **ECE** 164, 165, 166
- **Technical Electives:**
  - five upper-division engineering, math, or physics courses
- **Professional Electives:**
  - two upper-division courses
- **Design:**
  - one of **ECE** 111, 115, 140B, 190, or 191

## ELECTRONIC DEVICES & MATERIALS

### Lower Division (72 units)
- **MATH** 18, 20A, 20B, 20C, 20D, 20E
- **PHYS** 2A, 2B, 2C, 2D
- **CHEM** 6A
- **ECE** 5, 15, 25, 30, 35, 45, 65

### Upper Division (68 units)
- **Breadth:**
  - **ECE** 100, 101, 102, 103, 107, 109
- **Depth:**
  - **ECE** 135A-B, 136L, 183
- **Technical Electives:**
  - four upper-division engineering, math, or physics courses
- **Professional Electives:**
  - two upper-division courses
- **Design:**
  - one of **ECE** 111, 115, 140B, 190, or 191

## PHOTONICS

### Lower Division (72 units)
- **MATH** 18, 20A, 20B, 20C, 20D, 20E
- **PHYS** 2A, 2B, 2C, 2D
- **CHEM** 6A
- **ECE** 5, 15, 25, 30, 35, 45, 65

### Upper Division (68 units)
- **Breadth:**
  - **ECE** 100, 101, 103, 107, 109
- **Depth:**
  - **ECE** 181, 182, 183 and either **ECE** 184 or 185
- **Technical Electives:**
  - five upper-division engineering, math, or physics courses
- **Professional Electives:**
  - two upper-division courses
- **Design:**
  - one of **ECE** 111, 115, 140B, 190, or 191
## ELECTRICAL ENGINEERING
### MAJOR REQUIREMENTS

#### COMMUNICATION SYSTEMS
- **Lower Division (68 units)**
  - MATH 18, 20A, 20B, 20C, 20D, and 20E
  - PHYS 2A, 2B, 2C
  - CHEM 6A
  - ECE 5, 15, 25, 30, 35, 45, 65
- **Upper Division (72 units)**
  - Breadth:
    - ECE 100, 101, 102, 107, 109
  - Depth:
    - ECE 153, 154A-B-C, 158A
  - Technical Electives:
    - five upper-division engineering, math, or physics courses
  - Professional Electives:
    - two upper-division courses
  - Design Course:
    - one of ECE 111, 115, 140B, 190, or 191

#### MACHINE LEARNING & CONTROLS
- **Lower Division (68 units)**
  - MATH 18, 20A, 20B, 20C, 20D, and 20E
  - PHYS 2A, 2B, 2C
  - CHEM 6A
  - ECE 5, 15, 25, 30, 35, 45, 65
- **Upper Division (72 units)**
  - Breadth:
    - ECE 100, 101, 107, 109
  - Depth:
    - ECE 171A, 174, 175A and one of ECE 171B, 172A, or 175B
  - Technical Electives:
    - seven upper-division engineering, math, or physics courses
  - Professional Electives:
    - two upper-division courses
  - Design:
    - one of ECE 111, 115, 140B, 190, or 191

#### SIGNAL & IMAGE PROCESSING
- **Lower Division (68 units)**
  - MATH 18, 20A, 20B, 20C, 20D, and 20E
  - PHYS 2A, 2B, 2C
  - CHEM 6A
  - ECE 5, 15, 25, 30, 35, 45, 65
- **Upper Division (72 units)**
  - Breadth:
    - ECE 100, 101, 107, 109
  - Depth:
    - ECE 153, 161A-B-C
  - Technical Electives:
    - seven upper-division engineering, math, or physics courses
  - Professional Electives:
    - two upper-division courses
  - Design:
    - one of ECE 111, 115, 140B, 190, or 191

#### COMPUTER SYSTEM DESIGN
- **Lower Division (72 units)**
  - MATH 18, 20A, 20B, 20C, 20D, and 20E
  - PHYS 2A, 2B, 2C
  - CHEM 6A
  - ECE 5, 15, 16, 25, 30, 35, 45, and 65
- **Upper Division (68 units)**
  - Breadth:
    - ECE 100, 101, 109
  - Depth:
    - any five of ECE 102, 103, 111*, 140A-B, 141A-B, 143, 158A, 158B or 165
  - Technical Electives:
    - six upper-division engineering, math, or physics courses
  - Professional Electives:
    - two upper-division courses
  - Design:
    - one of ECE 111*, 115, 140B, 190, or 191

*ECE 111 MUST be taken as either a depth, technical elective, or design course