

## 2020-2021 ELECTRICAL ENGINEERING MAJOR REQUIREMENTS

### ELECTRONIC CIRCUITS AND SYSTEMS

#### LOWER DIVISION COURSES [72 UNITS]

MATH 18, 20A-B-C-D-E  
PHYS 2A-B-C-D  
CHEM 6A  
ECE 5, 15, 25, 30, 35, 45, 65

#### UPPER DIVISION COURSES [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 AND MATERIALS

#### Lower Division Courses [72 units]

MATH 18, 20A-B-C-D-E  
PHYS 2A-B-C-D  
CHEM 6A  
ECE 5, 15, 25, 30, 35, 45, 65

#### Upper Division Courses [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 Courses [72 units]

MATH 18, 20A-B-C-D-E  
PHYS 2A-B-C-D  
CHEM 6A  
ECE 5, 15, 25, 30, 35, 45, 65

#### Upper Division Courses [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

### POWER ENGINEERING

#### LOWER DIVISION COURSES [72 UNITS]

MATH 18, 20A-B-C-D-E  
PHYS 2A-B-C-D  
CHEM 6A  
ECE 5, 15, 25, 30, 35, 45, 65

#### UPPER DIVISION COURSES [68 UNITS]

**Breadth:** ECE 100, 101, 102, 103, 107, 109  
**Depth:** ECE 121A-B, 125A, 128A and either ECE 125B or 128B  
**Technical Electives:** three upper division engineering, math, or physics courses  
**Professional Electives:** two upper division courses  
**Design:** one of ECE 111, 115, 140B, 190, or 191

## COMMUNICATION SYSTEMS

### Lower Division Courses [72 units]

MATH 18, 20A-B-C-D-E

PHYS 2A-B-C

CHEM 6A

ECE 5, 15, 17, 25, 30, 35, 45, 65

### Upper Division Courses [68 units]

**Breadth:** ECE 100, 101, 102, 107, 109

**Depth:** ECE 153, 155, 157A, 158A, 159

**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

## MACHINE LEARNING AND CONTROLS

### Lower Division Courses [72 units]

MATH 18, 20A-B-C-D-E

PHYS 2A-B-C

CHEM 6A

ECE 5, 15, 17, 25, 30, 35, 45, 65

### Upper Division Courses [68 units]

**Breadth:** ECE 100, 101, 107, 109

**Depth:** ECE 171A, 174, 175A and one of ECE 171B, 172A, or 175B

**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

## SIGNAL AND IMAGE PROCESSING

### Lower Division Courses [72 units]

MATH 18, 20A-B-C-D-E

PHYS 2A-B-C

CHEM 6A

ECE 5, 15, 17, 25, 30, 35, 45, 65

### Upper Division Courses [68 units]

**Breadth:** ECE 100, 101, 107, 109

**Depth:** ECE 153, 161A-B-C

**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

## COMPUTER SYSTEM DESIGN

### Lower Division Courses [76 units]

MATH 18, 20A-B-C-D-E

PHYS 2A-B-C

CHEM 6A

ECE 5, 15, 16, 17, 25, 30, 35, 45, 65

### Upper Division Courses [64 units]

**Breadth:** ECE 100, 101, 109

**Depth:** Any five of ECE 102, 103, 111\*, 140A-B, 141A-B, 143, 158A-B, or 165

**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

*\*ECE 111 MUST be taken as either a depth, tech. Elective or design course*

### NOTES:

ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C– or better.**

Due to seven different college requirements, only **major** requirements are listed. Students must speak to their college advisor for questions regarding General Education requirements.

**2020-2021 DEPTH REQUIREMENTS CONTINUED ON NEXT PAGE →**

## COMMUNICATION SYSTEMS DEPTH

	Fall quarter	Winter quarter	Spring quarter
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 MATH 20E	ECE 17 ECE 30 ECE 65
<b>YEAR 2</b>	ECE 100 ECE 101 TECH. ELECTIVE	ECE 102 ECE 107 ECE 109	ECE 153 TECH. ELECTIVE TECH. ELECTIVE
<b>YEAR 3</b>	ECE155 ECE 158A ECE 161A*	ECE 159 DESIGN PROF. ELECTIVE	ECE157A* PROF. ELECTIVE

\*ECE 157A requires ECE 109 and 161A. ECE 161A will count towards one Technical Elective.

- Due to seven different college requirements, only **major** requirements are listed. Students must contact their college advisors for questions regarding General Education and University of California requirements.
- This plan assumes that transfer students have completed all the transferable lower division MATH, PHYS and CHEM courses at the community college that are required for the major.
- Course offerings are subject to change. Please go to <http://www.ece.ucsd.edu/courses> for more information.
- Go to <http://www.ece.ucsd.edu/undergraduate/ee-ep-electives> for a list of acceptable electives.
- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C- or better.**

## COMPUTER SYSTEM DESIGN DEPTH

	Fall quarter	Winter quarter	Spring quarter
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 ECE 65	ECE 16 ECE 30 MATH 20E
<b>YEAR 2</b>	ECE 17 ECE 100 ECE 101	ECE 109 DEPTH* TECH. ELECTIVE	DEPTH* DEPTH* TECH. ELECTIVE
<b>YEAR 3</b>	DEPTH* TECH. ELECTIVE PROF. ELECTIVE	DEPTH* TECH. ELECTIVE PROF. ELECTIVE	DESIGN TECH. ELECTIVE

\* Pick any five of ECE 102,103, 111, 140A-B, 141A-B, 143, 158A-B or 165 to satisfy the Computer System Design Depth. ECE 111 must be taken either as a Depth, Elective or Design course.

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**ELECTRONIC CIRCUITS & SYSTEMS DEPTH**

	Fall quarter	Winter quarter	Spring quarter
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 MATH 20E	ECE 30 ECE 65 PHYS 2D
<b>YEAR 2</b>	ECE 100 ECE 101 ECE 103	ECE 102 ECE 107 ECE 109	ECE 165 TECH. ELECTIVE TECH. ELECTIVE
<b>YEAR 3</b>	ECE 164 ECE 166 PROF. ELECTIVE	TECH. ELECTIVE TECH. ELECTIVE PROF. ELECTIVE	DESIGN TECH. ELECTIVE

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**ELECTRONIC DEVICES & MATERIALS DEPTH**

	Fall quarter	Winter quarter	Spring quarter
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 MATH 20E	ECE 30 ECE 65 PHYS 2D
<b>YEAR 2</b>	ECE 100 ECE 101 ECE 103	ECE 102 ECE 107 ECE 109	TECH. ELECTIVE TECH. ELECTIVE TECH. ELECTIVE
<b>YEAR 3</b>	ECE 135A TECH. ELECTIVE PROF. ELECTIVE	ECE 135B ECE 183 PROF. ELECTIVE	ECE 136L DESIGN

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## MACHINE LEARNING & CONTROLS DEPTH

	Fall quarter	Winter quarter	Spring quarter
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 MATH 20E	ECE 17 ECE 30 ECE 65
<b>YEAR 2</b>	ECE 100 ECE 101 TECH. ELECTIVE	ECE 107 ECE 109 TECH. ELECTIVE	ECE 171A TECH. ELECTIVE TECH. ELECTIVE
<b>YEAR 3</b>	ECE 174 ECE 171B* PROF. ELECTIVE TECH. ELECTIVE	ECE 175A ECE 172A* PROF. ELECTIVE	ECE 175B* DESIGN TECH. ELECTIVE

\*Pick one of ECE 171B, 172A or 175B to satisfy the 4th course in the Machine Learning & Controls Depth.

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## PHOTONICS DEPTH

	Fall quarter	Winter quarter	Spring quarter
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 MATH 20E	ECE 30 ECE 65 PHYS 2D
<b>YEAR 2</b>	ECE 100 ECE 101 ECE 103	ECE 107 ECE 109 TECH. ELECTIVE	ECE 181 TECH. ELECTIVE TECH. ELECTIVE
<b>YEAR 3</b>	ECE 182 TECH. ELECTIVE PROF. ELECTIVE	ECE 183 ECE 184* PROF. ELECTIVE	ECE 185* DESIGN TECH. ELECTIVE

\* Pick ECE 184 or ECE 185 for the 4th course in the Photonics Depth.

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- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C- or better.**

**POWER ENGINEERING DEPTH**

	<b>Fall quarter</b>	<b>Winter quarter</b>	<b>Spring quarter</b>
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 MATH 20E	ECE 30 ECE 65 PHYS 2D
<b>YEAR 2</b>	ECE 100 ECE 101 ECE 103	ECE 102 ECE 107 ECE 109	PROF. ELECTIVE TECH. ELECTIVE TECH. ELECTIVE
<b>YEAR 3</b>	ECE 121A ECE 128A PROF. ELECTIVE	ECE 121B ECE 125A ECE 128B*	ECE 125B* DESIGN TECH. ELECTIVE

\* Pick ECE 125B or ECE 128B for the 5th course in the Power Engineering Depth.

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- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C- or better.**

## SIGNAL & IMAGE PROCESSING DEPTH

	Fall quarter	Winter quarter	Spring quarter
<b>YEAR 1</b>	ECE 5 or 15 ECE 25 ECE 35	ECE 15 or 5 ECE 45 MATH 20E	ECE 17 ECE 30 ECE 65
<b>YEAR 2</b>	ECE 100 ECE 101 TECH. ELECTIVE	ECE 107 ECE 109 TECH. ELECTIVE	ECE 153 TECH. ELECTIVE TECH. ELECTIVE
<b>YEAR 3</b>	ECE 161A TECH. ELECTIVE PROF. ELECTIVE	ECE 161B TECH. ELECTIVE PROF. ELECTIVE	ECE 161C DESIGN

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