

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

2018-19

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 a depth, technical elective, or design course

COMMUNICATION SYSTEMS DEPTH

	Fall quarter	Winter quarter	Spring quarter
Year 1	ECE 5 or 15 CHEM 6A MATH 18	ECE 15 or 5 ECE 25 MATH 20A	ECE 30 PHYS 2A MATH 20B
Year 2	ECE 35 PHYS 2B MATH 20C	ECE 45 PHYS 2C MATH 20D	ECE 65 ECE 109 MATH 20E
Year 3	ECE 100 ECE 101 TECH. ELECTIVE	ECE 102 ECE 107 TECH. ELECTIVE	ECE 153 TECH. ELECTIVE TECH. ELECTIVE
Year 4	ECE 154A ECE 158A PROF. ELECTIVE	ECE 154B TECH. ELECTIVE PROF. ELECTIVE	ECE 154C DESIGN

Please note:

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- 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.
- Pick one of ECE 111, 115, 140B, 190 or 191 to complete the Design requirement.
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COMPUTER SYSTEM DESIGN DEPTH

	Fall quarter	Winter quarter	Spring quarter
Year 1	ECE 5 or 15 CHEM 6A MATH 18	ECE 15 or 5 ECE 25 MATH 20A	ECE 16 PHYS 2A MATH 20B
Year 2	ECE 35 PHYS 2B MATH 20C	ECE 45 PHYS 2C MATH 20D	ECE 30 ECE 65 MATH 20E
Year 3	ECE 100 ECE 101 TECH. ELECTIVE	ECE 109 DEPTH 1 TECH. ELECTIVE	DEPTH 2 TECH. ELECTIVE PROF. ELECTIVE
Year 4	DEPTH 3 TECH. ELECTIVE TECH. ELECTIVE	DEPTH 4 TECH. ELECTIVE PROF. ELECTIVE	DEPTH 5 DESIGN

* 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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- Pick one of ECE 111, 115, 140B, 190 or 191 to complete the Design requirement.
- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C– or better.**

ELECTRONIC CIRCUITS & SYSTEMS DEPTH

	Fall quarter	Winter quarter	Spring quarter
Year 1	ECE 5 or 15 CHEM 6A MATH 18	ECE 15 or 5 ECE 25 MATH 20A	ECE 30 PHYS 2A MATH 20B
Year 2	ECE 35 PHYS 2B MATH 20C	ECE 45 PHYS 2C MATH 20D	ECE 65 PHYS 2D MATH 20E
Year 3	ECE 100 ECE 101 ECE 103	ECE 102 ECE 107 ECE 109	ECE 165 TECH. ELECTIVE PROF. ELECTIVE
Year 4	ECE 164 ECE 166 TECH. ELECTIVE	TECH. ELECTIVE TECH. ELECTIVE PROF. ELECTIVE	TECH. ELECTIVE DESIGN

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- Pick one of ECE 111, 115, 140B, 190 or 191 to complete the Design requirement.
- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C- or better.**

ELECTRONIC DEVICES & MATERIALS DEPTH

	Fall quarter	Winter quarter	Spring quarter
Year 1	ECE 5 or 15 CHEM 6A MATH 18	ECE 15 or 5 ECE 25 MATH 20A	ECE 30 PHYS 2A MATH 20B
Year 2	ECE 35 PHYS 2B MATH 20C	ECE 45 PHYS 2C MATH 20D	ECE 65 PHYS 2D MATH 20E
Year 3	ECE 100 ECE 101 ECE 103	ECE 102 ECE 107 ECE 109	TECH. ELECTIVE TECH. ELECTIVE PROF. ELECTIVE
Year 4	ECE 135A TECH. ELECTIVE PROF. ELECTIVE	ECE 135B ECE 183 TECH. ELECTIVE	ECE 136L DESIGN

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- Pick one of ECE 111, 115, 140B, 190 or 191 to complete the Design requirement.
- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C- or better.**

MACHINE LEARNING & CONTROLS DEPTH

	Fall quarter	Winter quarter	Spring quarter
Year 1	ECE 5 or 15 CHEM 6A MATH 18	ECE 15 or 5 ECE 25 MATH 20A	ECE 30 PHYS 2A MATH 20B
Year 2	ECE 35 PHYS 2B MATH 20C	ECE 45 PHYS 2C MATH 20D	ECE 65 ECE 109 MATH 20E
Year 3	ECE 100 ECE 101 TECH. ELECTIVE	ECE 107 TECH. ELECTIVE TECH. ELECTIVE	ECE 171A TECH. ELECTIVE TECH. ELECTIVE
Year 4	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 complete the 4th Depth course requirement.

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- Go to <http://www.ece.ucsd.edu/undergraduate/ee-ep-electives> for a list of acceptable electives.
- Pick one of ECE 111, 115, 140B, 190 or 191 to complete the Design requirement.
- ALL courses used to satisfy major requirements must be taken for a **letter grade and passed with a C– or better.**

PHOTONICS DEPTH

	Fall quarter	Winter quarter	Spring quarter
Year 1	ECE 5 or 15 CHEM 6A MATH 18	ECE 15 or 5 ECE 25 MATH 20A	ECE 30 PHYS 2A MATH 20B
Year 2	ECE 35 PHYS 2B MATH 20C	ECE 45 PHYS 2C MATH 20D	ECE 65 PHYS 2D MATH 20E
Year 3	ECE 100 ECE 101 ECE 103	ECE 107 ECE 109 TECH. ELECTIVE	ECE 181 TECH. ELECTIVE PROF. ELECTIVE
Year 4	ECE 182 TECH. ELECTIVE PROF. ELECTIVE	ECE 183 ECE 184* TECH. ELECTIVE	ECE 185* DESIGN TECH. ELECTIVE

*Pick either ECE 184 or ECE 185 to complete the 4th Depth course requirement.

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- Go to <http://www.ece.ucsd.edu/undergraduate/ee-ep-electives> for a list of acceptable electives.
- Pick one of ECE 111, 115, 140B, 190 or 191 to complete the Design requirement.
- 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
Year 1	ECE 5 or 15 CHEM 6A MATH 18	ECE 15 or 5 ECE 25 MATH 20A	ECE 30 PHYS 2A MATH 20B
Year 2	ECE 35 PHYS 2B MATH 20C	ECE 45 PHYS 2C MATH 20D	ECE 65 ECE 109 MATH 20E
Year 3	ECE 100 ECE 101 TECH. ELECTIVE	ECE 107 TECH. ELECTIVE TECH. ELECTIVE	ECE 153 TECH. ELECTIVE PROF. ELECTIVE
Year 4	ECE 161A TECH. ELECTIVE TECH. ELECTIVE	ECE 161B TECH. ELECTIVE PROF. ELECTIVE	ECE 161C DESIGN

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