

2019-2020 ELECTRICAL ENGINEERING MAJOR REQUIREMENTS

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 requirements.

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

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

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*

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 17 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 102 ECE 107 ECE 109	ECE 153 TECH. ELECTIVE TECH. ELECTIVE
Year 4	ECE 155 ECE 158A PROF. ELECTIVE	ECE 157A* ECE 159 PROF. ELECTIVE	TECH. ELECTIVE DESIGN

*ECE 157A requires ECE 161A which is offered in the fall. Please plan accordingly.

Please note:

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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**

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 17 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 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.
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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.
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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.
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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 17 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 107 ECE 109 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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- 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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- 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 17 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 107 ECE 109 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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