ELECTRICAL ENGINEERING, BS, WITH ENERGY AND POWER ENGINEERING EMPHASIS

Natural Sciences, Mathematics, and Engineering (nsme) (https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/)

Department of Computer and Electrical Engineering and Computer Science (https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/department-computer-electrical-engineering-computer-science/)

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Program Maps for Natural Sciences, Mathematics, and Engineering (https://programmap.csub.edu/academics/interest-clusters/4e942a6e-b8e4-4b60-a1ae-334235acc581/)

Program Requirements

Code	Title	Units
General Education Requirements		
First-Year Seminar (FYS) [2]		0
Lower Division Area A: Foundational Skills [2]		6
Lower Division Area B: Natural Sciences [2]		0
Lower Division Area C: Arts and Humanities		6
Lower Division Area D: Social and Behavioral Sciences [2]		0
Lower Division Area E: Student Enrichment and Lifelong Learning (SELF) [2]		0
Lower Division Area F: Ethnic Studies		3
American Institutions: Government and History		6
Junior Year Diversity & Reflection (JYDR)		3
Graduation Writing Assessment Requirement (GWAR) [2]		0
Upper Division Thematic Area C and D [2]		0
General Education Capstone [2]		0
General Education Subtotal [2]		*24*
Major Requirements		
Lower Division		
ECE/ENGR 1618	Introduction to Engineering I	2
ECE/ENGR 1628	Introduction to Engineering II	2
ENGR/ECE/PHYS 2070	Electric Circuits	4
CMPS 2010	Programming I: Programming Fundamentals	4
Upper Division		
ECE 3040	Signals and Systems	4
ECE 3070	Analog Circuits	4
ECE 3200	Digital Circuits	4
ECE 3230	Digital Communications	4
ECE 3320	Fields and Waves	4
ECE 3370	Power Systems Fundamentals	4
ECE 3340	Control Systems	4
ECE 4910	Senior Project I	2
ECE 4928	Senior Project II	2
Upper Division Elective courses for The Energy and Power Emphasis [1]		
ENGR 3110	Thermodynamics	4
ENGR 4610	Conventional Energy Production	3
ENGR 4620	Renewable Energy Production	3
ECE 4380	Power System Operation with Renewable Energy Resources	3
ECE 4381	Power System Operation with Renewable Energy Resources Laboratory	1
Major Subtotal		*58*
Additional Units Needed Towards Graduation [4]		**2-6**
Total Units		**84-88**

[1] In addition, students pursuing this emphasis are encouraged to undertake a design project related to energy and power engineering, when available, in ECE 4910 Senior Project I and ECE 4928 Senior Project II.

[2] Some of the courses required for the Electrical Engineering major also satisfy General Education requirements. Students who complete each of these courses with the appropriate grade will also satisfy the GE requirement, even if they were to change majors:

- ECE 1618 Introduction to Engineering I /ENGR 1618 Introduction to Engineering I and ECE 1628 Introduction to Engineering IIENGR 1628 Introduction to Engineering II satisfy the First-Year Seminar requirement.
- ECE 4928 Senior Project II satisfies the Capstone requirement.
- PHIL 3318 Professional Ethics satisfies UD Thematic Area C and the Electrical Engineering Ethics requirement.
- PHYS 2210 Physics for Scientists and Engineers I satisfies LD Area B1.
- MATH 2510 Single Variable Calculus I or MATH 2310 Single Variable Calculus I for Engineers with a grade of C- or better satisfies Foundational Skills B4.
- PHIL 3318 Professional Ethics satisfies GWAR.

Electrical Engineering majors have the following General Education Modifications (GEMs), which means they do not have to take courses to satisfy these GE requirements. These GEMs are specific to the three engineering majors (Computer Engineering, Electrical Engineering and Engineering Sciences). Students who change to another major will not keep the modifications:

- Foundational Skill A3 is embedded in PHYS 2210 Physics for Scientists and Engineers I, PHYS 2220 Physics for Scientists and Engineers II[B1] and ECE 2070 Electric Circuits/ENGR 2070 Electric Circuits/PHYS 2070 Electric Circuits[A3].
- LD Area B2 is embedded throughout the curriculum.
- 3 units of LD Area D is met through EAC/ABET outcomes 2 and 4.

[3] UD Thematic Area D is met through EAC/ABET outcomes 2 and 4 The SELF requirement can be met by selecting another General Education course with a SELF overlay or by taking a stand-alone course. If a student opts to take a stand-alone course for SELF, the

course will add additional units to that student's general education pathway.

[4] Additional Units are required to meet the 120-unit requirement for graduation. Any accepted university units may be used to meet this requirement, including stand-alone courses for SELF.

SB1440 units required – 58-60 units [1]

[1] Units required for graduation after completion of the Engineering (Electrical Engineering focus) model curriculum and lower-division general education at a California community college.

Note: One (1) semester unit of credit normally represents one hour of in-class work and 2-3 hours of outside study per week.