

Note: No Major or Support courses may be selected as credit/no credit.

MAJOR COURSES		
CPE/EE 133	Digital Design	4
CPE/EE 233	Computer Design & Assembly Lang Program	4
EE 111 & EE 151	Introduction to Electrical Engineering and Introduction to Electrical Engineering Lab	2
Select from the following:		4
EE 113 & EE 143	Electric Circuit Analysis I and Elect Manufact & Circuit Analysis Lab	or
EE 112 & IME 156	Electric Circuit Analysis I and Basic Electronics Manufacturing	
EE 211 & EE 241	Electric Circuit Analysis II and Electric Circuit Analysis Laboratory II	4
EE 212 & EE 242	Electric Circuit Analysis III and Electric Circuit Analysis Laboratory III	4
EE 228	Continuous-Time Signals and Systems	4
EE 255 & EE 295	Energy Conversion Electromagnetics and Energy Conversion Electromagnetics Lab	4
EE 302 & EE 342	Classical Control Systems and Classical Control Systems Laboratory	4
EE 306 & EE 346	Semiconductor Device Electronics and Semiconductor Device Electronics Lab	4
EE 307 & EE 347	Digital Electronics & Integrated Circuits and Digital Elect & Integrated Circuits Lab	4
EE 308 & EE 348	Analog Electronics and Integrated Circuits and Analog Elect & Integrated Circuits Lab	4
EE 314	Introduction to Communication Systems	3
EE 328 & EE 368	Discrete Time Signals and Systems and Signals and Systems Laboratory	4
EE/CPE 329 or EE 336	Microcontroller-Based Systems Design Microprocessor System Design	4
EE 335	Electromagnetic Fields and Transmission	4
EE 375	Electromagnetic Fields & Transmission Lab	1
EE 402	Electromagnetic Waves	4
EE 409 & EE 449	Electronic Design and Electronic Design Laboratory	4
EE 460	Senior Project Preparation ¹	2
Select from the following: ¹		4
EE 461 & EE 462	Senior Project I and Senior Project II	or
EE 463 & EE 464	Senior Project Design Laboratory I and Senior Project Design Laboratory II	
Total Major Units		76

FOOTNOTES

1 Either the ENGR 459, ENGR 460 and ENGR 461 (6) series or the ENGR 463, ENGR 464 and ENGR 465 (6) series may substitute for the EE 460, EE 461 and EE 462 (6) series or the EE 460, EE 463 and EE 464 (6) series.

2 Required in Major or Support; also satisfies General Education (GE) requirement.

3 Unless a concentration is declared, the default will be General Curriculum in Electrical Engineering.

SUPPORT COURSES		
BIO 213 & BMED 213	Life Science for Engineers and Bioengineering Fundamentals (B2) ²	4
CHEM 124	Gen Chem for Physical Science & Engineering I (B1 & B3)	4
CSC/CPE 101	Fundamentals of Computer Science	4
MATH 141	Calculus I (B4) ²	4
MATH 142	Calculus II (B4) ²	4
MATH 143	Calculus III (Area B Electives) ²	4
MATH 241	Calculus IV	4
MATH 244	Linear Analysis I	4
PHYS 141	General Physics IA (Area B Electives) ²	4
PHYS 142	General Physics II	4
PHYS 143	General Physics III	4
PHYS 211	Modern Physics I	4
STAT 350	Probability and Random Processes for Engineers (Upper-Division B) ²	4
Concentration or General Curriculum in Electrical Engineering ³ (See list of Concentrations and General Curriculum in Electrical Engineering below)		20
Total Support Units		72

GENERAL EDUCATION

Area A English Language Communication and Critical Thinking

A1	Oral Communication	4
A2	Written Communication	4
A3	Critical Thinking	4

Area B Scientific Inquiry and Quantitative Reasoning

B1	Physical Science (4 units in Support) ²	0
B2	Life Science (4 units in Support) ²	0
B3	One lab taken with either a B1 or B2 course	
B4	Math/Quantitative Reason (8 units in Support) ²	0
Upper-Division B (4 units in Support) ²		0
Area B Electives (8 units in Support) ²		0

Area C Arts and Humanities

Lower-division courses in Area C must come from three different subject prefixes.

C1	Arts	4
C2	Humanities	4
Lower-Division C Elective - Select a course from either C1 or C2.		4
Upper-Division C		4

Area D Social Sciences

D1	American Institutions (Title 5, Section 40404 Requirement)	4
Area D Elective - Select either a lower-division D2 or upper-division D course.		4

Area E Lifelong Learning and Self-Development

Lower-Division E		4
------------------	--	---

Area F Ethnic Studies

F	Ethnic Studies	4
---	----------------	---

Total GE Units		44
-----------------------	--	-----------

FREE ELECTIVES		0
-----------------------	--	----------

TOTAL DEGREE UNITS		192
---------------------------	--	------------



General Curriculum in Electrical Engineering	
Technical Electives	
Select from the following: ^{1,2,3}	11
EE Senior Design Lecture/Laboratory Electives	
EE 410	Power Electronics I
EE 411	Power Electronics II
EE 413	Advanced Electronic Design
EE/CPE 414	Robotic Systems Integration
EE 417	Alternating Current Machines
EE 420	Sustainable Electric Energy Conversion
EE 424	Introduction to Remote Sensing
EE/CPE 428	Computer Vision
EE 431/CPE 441	Computer-Aided Design of VLSI Devices
EE 433	Introduction to Magnetic Design
EE 434	Automotive Engr for a Sustainable Future
EE/CPE 439	Intro to Real-Time Operating Systems
EE/CPE 442	Real Time Embedded Systems
EE/CPE 446	Design of Fault-Tolerant Digital Systems
EE/CPE 447	Stringed Musical Instrument Acoustics, Mechanics, and Transducer Design
EE 495	Cooperative Education Experience ⁴
EE 502	Microwave Component & System Engineering
EE 504	Software Defined Radio
EE 516	Pattern Recognition
EE/CPE 521	Computer Systems
EE/CPE 522	Adv. Real-Time Operating Systems Design
EE/CPE 523	Digital Systems Design
EE 529	Microwave Device Electronics
EE 531/CPE 541	Advanced VLSI Design
EE 534	Advanced Photonic Systems
EE/CPE 542	Advanced Real Time Embedded Systems
EE Senior Design Lecture Electives	
EE 400	Special Problems ⁵
EE 403	Introduction to Photonics and Fiber Optics
EE 405	High Frequency Amplifier Design
EE 406	Power Systems Analysis I
EE 407	Power Systems Analysis II
EE 412	Advanced Analog Circuits
EE 415	Communication Systems Design
EE 416	Digital Communication Systems
EE 418	Photonic Engineering
EE 419	Digital Signal Processing
EE 423/BMED	Micro/Nano Fabrication
434/MATE 430	
EE 425	Analog Filter Design
EE/CPE 432	Digital Control Systems
EE 440	Wireless Communications
EE 470	Selected Advanced Topics
EE 502	Microwave Component & System Engineering
EE 509	Computational Intelligence
EE 511	Electric Machines Theory
EE 513	Control Systems Theory
EE 514	Advanced Topics in Automatic Control
EE 515	Discrete Time Filters
EE 518	Power System Protection
EE 519	Advanced Analysis of Power Systems
EE 520	Advanced Solar-Photovoltaic Systems Design
EE 524	Solid State Electronics
EE 526	Advanced Digital Communications

Power Concentration		
EE 406	Power Systems Analysis I	4
or EE 410	Power Electronics I	
Approved Electives		
Select from the following:		9
IME 314	Engineering Economics	
IME 315	Financial Decision Making for Engineers	
MATE 210	Materials Engineering	
MATE 340	Electronic Materials Systems	
MATH 248	Methods of Proof in Mathematics	
MATH 304	Vector Analysis	
MATH 306	Linear Algebra II	
MATH 451	Numerical Analysis I	
ME 211	Engineering Statics	
ME 212	Engineering Dynamics	
ME 302	Thermodynamics I	
PHYS 310	Physics of Energy	
Technical Electives		
Select from the following:		7
EE 406	Power Systems Analysis I	
EE 407	Power Systems Analysis II	
EE 410	Power Electronics I	
EE 411	Power Electronics II	
EE 417	Alternating Current Machines	
EE 420	Sustainable Electric Energy Conversion	
EE 432	Digital Control Systems	
EE 433	Introduction to Magnetic Design	
EE 434	Automotive Engineering for a Sustainable Future	
EE 435	Industrial Power Control and Automation	
EE 444	Power Systems Laboratory	
EE 472	Digital Control Systems Laboratory	
EE 509	Computational Intelligence	
EE 511	Electric Machines Theory	
EE 513	Control Systems Theory	
EE 514	Advanced Topics in Automatic Control	
EE 518	Power System Protection	
EE 519	Advanced Analysis of Power Systems	
EE 520	Advanced Solar-Photovoltaic Systems Design	
EE 527	Advanced Topics in Power Electronics	
MATH 453	Numerical Optimization	
Total Units		20



EE 527	Advanced Topics in Power Electronics
EE 528	Digital Image Processing
EE 530	Fourier Optics
EE 533	Antennas
EE 570	Selected Advanced Topics
EE Senior Design Laboratory Electives	
EE 400	Special Problems ⁵
EE/PHYS 422	Polymer Electronics Laboratory
EE 435	Industrial Power Control and Automation
EE 443	Intro to Photonics and Fiber Optics Lab
EE 444	Power Systems Laboratory
EE 445	High Frequency Amplifier Design Laboratory
EE 452	Advanced Analog Circuits Laboratory
EE 455	Analog Filter Design Laboratory
EE 456	Digital Communication Systems Laboratory
EE 458	Photonic Engineering Laboratory
EE 459	Digital Signal Processing Laboratory
EE 471	Selected Advanced Laboratory
EE/CPE 472	Digital Control Systems Laboratory
EE 473/BMED	Microfabrication Laboratory
435/MATE 435	
EE 475	Communication Networks & Systems Lab
EE 480	Wireless Communications Laboratory
EE/CPE 532	VLSI Circuit Testing
EE 541	Advanced Microwave Laboratory
EE 544	Solid-state Electronics and VLSI Laboratory
Non-EE Electives	
BMED 420	Principles of Biomaterials Design
BMED 425	Biomedical Engineering Transport
BMED 430	Biomedical Modeling and Simulation
BMED 440	Bioelectronics and Instrumentation
BMED 445	Biopotential Instrumentation
BUS 311	Managing Tech in the Intern Legal Environment
CHEM 314	Biochemistry: Fundamentals & Applications
CPE 315	Computer Architecture
CPE 333	Computer Hardware Architecture & Design
CPE 416	Autonomous Mobile Robotics
CPE 464	Introduction to Computer Networks
CSC/CPE 357	Systems Programming
CSC/CPE 453	Introduction to Operating Systems
CSC/CPE 458	Current Topics in Computer Systems
CSC/CPE 471	Introduction to Computer Graphics
ECON 330	International Trade Theory
ECON 337	Money, Banking and Credit
ENVE 331	Fundamentals of Environmental Engineering
IME 301	Operations Research I
IME 303	Project Organization and Management
IME 305	Operations Research II
IME 319	Human Factors Engineering
IME 401	Sales Engineering
IME 435	Reliability for Design and Testing
IME 457	Advanced Electronic Manufacturing
IME/MATE	Microelectronics and Electronics Packaging
458/CPE 488	
MATE 340	Electronic Materials Systems
MATH 304	Vector Analysis
MATH 306	Linear Algebra II
MATH 406	Linear Algebra III
MATH 410	Complex Analysis I

Radio Frequency - Microwaves - Photonics Concentration		
Approved Electives: ¹		
Select from the following:		9
EE 423/MATE	Micro/Nano Fabrication	
430/BMED 434		
EE 473/MATE	Microfabrication Laboratory	
435/BMED 435		
MATE 210	Materials Engineering	
MATE 215	Materials Laboratory I	
MATE 340	Electronic Materials Systems	
MATH 206	Linear Algebra I	
MATH 304	Vector Analysis	
PHYS 315	Lasers	
PHYS 323	Optics	
PHYS 408	Electromagnetic Fields and Waves I	
PHYS 423	Advanced Optics	
Technical Electives: ¹		
Select from the following:		11
EE 403	Introduction to Photonics and Fiber Optics	
EE 405	High Frequency Amplifier Design	
EE 412	Advanced Analog Circuits	
EE 413	Advanced Electronic Design	
EE 416	Digital Communication Systems	
EE 418	Photonic Engineering	
EE 423/MATE	Micro/Nano Fabrication	
430/BMED 434		
EE 425	Analog Filter Design	
EE 440	Wireless Communications	
EE 443	Introduction to Photonics and Fiber Optics Laboratory	
EE 445	High Frequency Amplifier Design Laboratory	
EE 452	Advanced Analog Circuits Laboratory	
EE 455	Analog Filter Design Laboratory	
EE 456	Digital Communication Systems Laboratory	
EE 458	Photonic Engineering Laboratory	
EE 480	Wireless Communications Laboratory	
EE 502	Microwave Component and System Engineering	
EE 504	Software Defined Radio	
EE 524	Solid State Electronics	
EE 526	Advanced Digital Communications	
EE 529	Microwave Device Electronics	
EE 530	Fourier Optics	
EE 533	Antennas	
EE 534	Advanced Photonic Systems	
EE 541	Advanced Microwave Laboratory	
PHYS 423	Advanced Optics	
Total Units		20

1 A course cannot be double-counted as an Approved Elective and a Technical Elective.



MATH 411	Complex Analysis II		Systems Concentration	
MATH 412	Introduction to Analysis I		Approved Electives ¹	
MATH 413	Introduction to Analysis II		Select from the following:	
MATH 451	Numerical Analysis I		BMED 310	Biomedical Engineering Measurement and Analysis
MATH 452	Numerical Analysis II		CPE/CSC 202	Data Structures
MATH 453	Numerical Optimization		CPE/CSC 203	Project-Based Object-Oriented Prog & Design
ME 302	Thermodynamics I		CPE 333	Computer Hardware Architecture and Design
ME 405	Mechatronics		IME 301	Operations Research I
ME 415	Energy Conversion		IME 305	Operations Research II
MU 311	Intro to Recording, Synthesis, & Production		MATH 206	Linear Algebra I
MU 312	Advanced Recording, Synthesis, & Production		MATH 306	Linear Algebra II
MU 411	Sonic Interactions with Technology		MATH 410	Complex Analysis I
PHYS 305	Classical Mechanics I		MATH 411	Complex Analysis II
PHYS 306	Classical Mechanics II		MATH 451	Numerical Analysis I
PHYS 310	Physics of Energy		ME 211	Engineering Statics
PHYS 313	Introduction to Atmospheric Physics		ME 212	Engineering Dynamics
PHYS 318	Special Theory of Relativity		PHYS 323	Optics
PHYS 403	Particle and Nuclear Physics		PHYS 428	Nonlinear Dynamical Systems
PHYS 405	Quantum Mechanics I		Technical Electives ¹	
PHYS 406	Quantum Mechanics II		Select from the following:	
PHYS 408	Electromagnetic Fields and Waves I		BMED 440	Bioelectronics and Instrumentation
PHYS 409	Electromagnetic Fields and Waves II		CPE 315	Computer Architecture
PHYS 423	Advanced Optics		CPE 333	Computer Hardware Architecture and Design
PHYS 425	Solid State Physics		CPE/CSC 357	Systems Programming
PHYS 426	Solid State Physics Laboratory		CPE/EE 414	Robotic Systems Integration
PHYS 428	Nonlinear Dynamical Systems		CPE 416	Autonomous Mobile Robotics
Approved Engineering Electives			CPE/EE 428	Computer Vision
Select from the following: ^{1,2,6}			CPE/EE 432	Digital Control Systems
BIO 111	General Biology	CPE/EE 442	Real Time Embedded Systems	
BMED 212	Intro to Biomedical Engineering Design	CPE/EE 447	Stringed Musical Instrument Acoustics, Mechanics, and Transducer Design	
BMED 310	Biomedical Engineering Measurement & Analysis	CPE 464	Introduction to Computer Networks	
BMED 450	Contemporary Issues in Biomedical Engineering	CPE/EE 472	Digital Control Systems Laboratory	
CHEM 125	Gen Chem for Physical Science and Engineering II	EE 403	Introduction to Photonics and Fiber Optics	
CHEM 212	Introduction to Organic Chemistry	EE 415	Communication Systems Design	
CHEM 314	Biochemistry: Fundamentals & Applications	EE 416	Digital Communication Systems	
CPE 290	Selected Topics (Intro to C++ Programming)	EE 419	Digital Signal Processing	
CPE 315	Computer Architecture	EE 424	Introduction to Remote Sensing	
CPE 333	Computer Hardware Architecture & Design	EE 425	Analog Filter Design	
CSC/CPE 202	Data Structures	EE 440	Wireless Communications	
CSC/CPE 203	Project-Based Object-Oriented Prog & Design	EE 443	Introduction to Photonics and Fiber Optics Laboratory	
CSC 248	Discrete Structures	EE 455	Analog Filter Design Laboratory	
CSC/CPE 357	Systems Programming	EE 456	Digital Communication Systems Laboratory	
EE 261	Intro C Programming with a Hardware Emphasis	EE 459	Digital Signal Processing Laboratory	
EE 262	Intro C++ Programming with a Hardware Emphasis	EE 475	Communication Networks and Systems Lab	
EE/PHYS 422	Polymer Electronics Laboratory	EE 480	Wireless Communications Laboratory	
IME 142	Manufacturing Processes: Materials Joining	EE 504	Software Defined Radio	
IME 143	Manufacturing Processes: Material Removal	EE 509	Computational Intelligence	
IME 301	Operations Research I	EE 513	Control Systems Theory	
IME 305	Operations Research II	EE 514	Advanced Topics in Automatic Control	
IME 314	Engineering Economics	EE 515	Discrete Time Filters	
IME 315	Financial Decision Making for Engineers	EE 516	Pattern Recognition	
MATE 210	Materials Engineering	EE 525	Stochastic Processes	
MATE 215	Materials Laboratory I	EE 526	Advanced Digital Communications	
MATE 232	Materials, Ethics, and Society	EE 528	Digital Image Processing	
MATE 340	Electronic Materials Systems	IME 301	Operations Research I	
MATE 430/	Micro/Nano Fabrication	IME 305	Operations Research II	
BMED 434/		MATH 306	Linear Algebra II	
EE 423		MATH 406	Linear Algebra III	

2022-2026

MATE/BMED 435/EE 473	Microfabrication Laboratory	
MATH 206	Linear Algebra I	
MATH 248	Methods of Proof in Mathematics	
MATH 304	Vector Analysis	
MATH 306	Linear Algebra II	
MATH 406	Linear Algebra III	
MATH 412	Introduction to Analysis I	
MATH 410	Complex Analysis I	
MATH 411	Complex Analysis II	
MATH 451	Numerical Analysis I	
MATH 452	Numerical Analysis II	
MATH 453	Numerical Optimization	
ME 211	Engineering Statics	
ME 212	Engineering Dynamics	
ME 228	Engineering Design Communication	
ME 251	Intro to Detailed Design with Solid Modeling	
ME 302	Thermodynamics I	
ME 341	Fluid Mechanics I	
PHYS 212	Modern Physics II	
PHYS 310	Physics of Energy	
PHYS 313	Introduction to Atmospheric Physics	
PHYS 315	Lasers	
PHYS 318	Special Theory of Relativity	
PHYS 323	Optics	
PHYS 403	Particle and Nuclear Physics	
PHYS 405	Quantum Mechanics I	
PHYS 406	Quantum Mechanics II	
PHYS 408	Electromagnetic Fields and Waves I	
PHYS 409	Electromagnetic Fields and Waves II	
PHYS 423	Advanced Optics	
PHYS 425	Solid State Physics	
PHYS 426	Solid State Physics Laboratory	
PHYS 428	Nonlinear Dynamical Systems	
Total Units		20

MATH 410	Complex Analysis I	to track on your graduation requirements
MATH 411	Complex Analysis II	
MATH 453	Numerical Optimization	
ME 405	Mechatronics	
MU 311	Introduction to Recording, Synthesis, and Production	
MU 312	Advanced Recording, Synthesis, and Production	
MU 411	Sonic Interactions with Technology	
Total Units		

1 A course cannot be double-counted as a Approved Elective and a Technical Elective.

1 Consultation with an advisor is recommended prior to selecting Technical Electives or Approved Electives; bear in mind your selections may impact pursuit of post-baccalaureate studies and/or goals.

2 A course cannot be double-counted as a Technical Elective and an Approved Engineering Elective.

3 A minimum of two EE Senior Design Lecture Electives and two EE Senior Design Laboratory Electives.

4 Four units maximum.

5 Four units maximum may count toward Technical Electives; one unit maximum, with approval of department chair, may count towards Senior Design Laboratory Elective.

6 The number of units given for transfer credit will not exceed the number of units of the Cal Poly course