

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 | 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 | General Chemistry for Physical Science and | 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 132 | General Physics II | 4 |
| PHYS 133 | 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.

Upper-Division C

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

Area F Ethnic Studies

Lower-Division F

Total GE Units **44**
FREE ELECTIVES **0**
TOTAL DEGREE UNITS **192**

| General Curriculum in Electrical Engineering | | Power Concentration | |
|--|----|--|-----------|
| Technical Electives | | EE 406 Power Systems Analysis I | 4 |
| Select from the following: ^{1,2,3} | 11 | or EE 410 Power Electronics I | |
| EE Senior Design Lecture/Laboratory Electives | | Approved Electives | |
| EE 410 Power Electronics I | | Select from the following: | 9 |
| EE 411 Power Electronics II | | IME 314 Engineering Economics | |
| EE 413 Advanced Electronic Design | | IME 315 Financial Decision Making for Engineers | |
| EE/CPE 414 Robotic Systems Integration | | MATE 210 Materials Engineering | |
| EE 417 Alternating Current Machines | | MATE 340 Electronic Materials Systems | |
| EE 420 Sustainable Electric Energy Conversion | | MATH 248 Methods of Proof in Mathematics | |
| EE 424 Introduction to Remote Sensing | | MATH 304 Vector Analysis | |
| EE/CPE 428 Computer Vision | | MATH 306 Linear Algebra II | |
| EE 431/CPE 441 Computer-Aided Design of VLSI Devices | | MATH 451 Numerical Analysis I | |
| EE 433 Introduction to Magnetic Design | | ME 211 Engineering Statics | |
| EE 434 Automotive Engineering for a Sustainable | | ME 212 Engineering Dynamics | |
| EE/CPE 439 Introduction to Real-Time Operating Systems | | ME 302 Thermodynamics I | |
| EE/CPE 442 Real Time Embedded Systems | | PHYS 310 Physics of Energy | |
| EE/CPE 446 Design of Fault-Tolerant Digital Systems | | Technical Electives | |
| EE/CPE 447 Stringed Musical Instrument Acoustics, | | Select from the following: | 7 |
| EE 495 Cooperative Education Experience ⁴ | | EE 406 Power Systems Analysis I | |
| EE 502 Microwave Component and System | | EE 407 Power Systems Analysis II | |
| EE 504 Software Defined Radio | | EE 410 Power Electronics I | |
| EE 516 Pattern Recognition | | EE 411 Power Electronics II | |
| EE/CPE 521 Computer Systems | | EE 417 Alternating Current Machines | |
| EE/CPE 522 Advanced Real-Time Operating Systems | | EE 420 Sustainable Electric Energy Conversion | |
| EE/CPE 523 Digital Systems Design | | EE 432 Digital Control Systems | |
| EE 529 Microwave Device Electronics | | EE 433 Introduction to Magnetic Design | |
| EE 531/CPE 541 Advanced VLSI Design | | EE 434 Automotive Engineering for a Sustainable Future | |
| EE 534 Advanced Photonic Systems | | EE 435 Industrial Power Control and Automation | |
| EE/CPE 542 Advanced Real Time Embedded Systems | | EE 444 Power Systems Laboratory | |
| EE Senior Design Lecture Electives | | EE 472 Digital Control Systems Laboratory | |
| EE 400 Special Problems ⁵ | | EE 509 Computational Intelligence | |
| EE 403 Introduction to Photonics and Fiber Optics | | EE 511 Electric Machines Theory | |
| EE 405 High Frequency Amplifier Design | | EE 513 Control Systems Theory | |
| EE 406 Power Systems Analysis I | | EE 514 Advanced Topics in Automatic Control | |
| EE 407 Power Systems Analysis II | | EE 518 Power System Protection | |
| EE 412 Advanced Analog Circuits | | EE 519 Advanced Analysis of Power Systems | |
| EE 415 Communication Systems Design | | EE 520 Advanced Solar-Photovoltaic Systems Design | |
| EE 416 Digital Communication Systems | | EE 527 Advanced Topics in Power Electronics | |
| EE 418 Photonic Engineering | | MATH 453 Numerical Optimization | |
| EE 419 Digital Signal Processing | | Total Units | 20 |
| 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 and System | | | |
| 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 | | | |
| EE 527 Advanced Topics in Power Electronics | | | |
| EE 528 Digital Image Processing | | | |

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| 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 | Introduction to Photonics and Fiber Optics |
| 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 and Systems |
| 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 |
| CHEM 313 | Survey of Biochemistry and Biotechnology |
| CPE 315 | Computer Architecture |
| CPE 333 | Computer Hardware Architecture and 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 408 | Complex Analysis I |
| MATH 409 | Complex Analysis II |
| MATH 412 | Introduction to Analysis I |
| MATH 413 | Introduction to Analysis II |

| Radio Frequency - Microwaves - Photonics Concentration | |
|---|---|
| Approved Electives: ¹ | |
| Select from the following: | 9 |
| EE 423/MATE 430/BMED 43 | Micro/Nano Fabrication |
| EE 473/MATE 435/BMED | Microfabrication Laboratory |
| 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 322 | Vibrations and Waves |
| 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 430/BMED 43 | Micro/Nano Fabrication |
| 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.

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| MATH 306 | Linear Algebra II |
| MATH 406 | Linear Algebra III |
| MATH 408 | Complex Analysis I |
| MATH 409 | Complex Analysis II |
| MATH 412 | Introduction to Analysis I |
| 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 | Introduction to Detailed Design with Solid |
| 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 322 | Vibrations and Waves |
| 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 412 | Solid State Physics |
| PHYS 417 | Nonlinear Dynamical Systems |
| PHYS 423 | Advanced Optics |
| PHYS 424 | Advanced Theoretical Physics |
| PHYS 452 | Solid State Physics Laboratory |
| Total Units | 20 |

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|----------|----------------------------|
| MATH 408 | Complex Analysis I |
| MATH 409 | Complex Analysis II |
| MATH 453 | Numerical Optimization |
| ME 405 | Mechatronics |
| MU 311 | Sound Design: Technologies |
| MU 312 | Sound Design: Recording |
| MU 411 | Sound Design: Synthesis |
| PHYS 322 | Vibrations and Waves |

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|--------------------|-----------|
| Total Units | 20 |
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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