

# BS ELECTRICAL ENGINEERING 2021-2022

This document displays only your course requirements at the time of publication of the catalog. You must use your Degree Progress Report to track all your graduation requirements.

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

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

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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 CO	DURSES	
BIO 213	Life Science for Engineers	4
& BMED 213	and Bioengineering Fundamentals (B2) <sup>2</sup>	
CHEM 124	General Chemistry for Physical Science and	4
CSC/CPE 101	Fundamentals of Computer Science	4
MATH 141	Calculus I (B4) <sup>2</sup>	4
MATH 142	Calculus II (B4) <sup>2</sup>	4
MATH 143	Calculus III (Area B Electives) <sup>2</sup>	4
MATH 241	Calculus IV	4
MATH 244	Linear Analysis I	4
PHYS 141	General Physics IA (Area B Electives) <sup>2</sup>	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	4
	(Upper-Division B) <sup>2</sup>	
Concentration or General Curriculum in Electrical Engineering <sup>3</sup>		20
	centrations and General Curriculum in Electrical	
Engineering be	low)	
Total Suppor	t Units	72

<b>GENER</b>	AL EDUCATION	
	Inglish Language Communication and Critical Think	ing
A1	Oral Communication	4
A2	Written Communication	4
A3	Critical Thinking	4
Area B S	cientific Inquiry and Quantitative Reasoning	
B1	Physical Science (4 units in Support) <sup>2</sup>	0
B2	Life Science (4 units in Support) <sup>2</sup>	0
В3	One lab taken with either a B1 or B2 course	
B4	Math/Quantitative Reason (8 units in Support) <sup>2</sup>	0
Upper-Div	ision B (4 units in Support) <sup>2</sup>	0
	ctives (8 units in Support) <sup>2</sup>	0
	arts and Humanities	
Lower-div	ision courses in Area C must come from three different sub	ject
prefixes.		
p. 0		
C1	Arts	4
•	Arts Humanities	4
C1 C2		+
C1 C2	Humanities ision C Elective - Select a course from either C1 or C2.	4
C1 C2 Lower-Div	Humanities ision C Elective - Select a course from either C1 or C2.	4
C1 C2 Lower-Div	Humanities ision C Elective - Select a course from either C1 or C2. ision C	4
C1 C2 Lower-Div Upper-Div Area D S	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  social Sciences  American Institutions (Title 5, Section 40404	4 4 4
C1 C2 Lower-Div Upper-Div Area D S	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  cocial Sciences  American Institutions (Title 5, Section 40404  Requirement)	4 4 4
C1 C2 Lower-Div Upper-Div Area D S D1 Area D Elecourse.	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  cocial Sciences  American Institutions (Title 5, Section 40404  Requirement)	4 4 4
C1 C2 Lower-Div Upper-Div Area D S D1 Area D Elecourse.	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  social Sciences  American Institutions (Title 5, Section 40404 Requirement)  ective - Select either a lower-division D2 or upper-division D  ifelong Learning and Self-Development	4 4 4
C1 C2 Lower-Div Upper-Div Area D S D1 Area D Ele course. Area E L Lower-Div	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  social Sciences  American Institutions (Title 5, Section 40404 Requirement)  ective - Select either a lower-division D2 or upper-division D  ifelong Learning and Self-Development	4 4 4
C1 C2 Lower-Div Upper-Div Area D S D1 Area D Ele course. Area E L Lower-Div	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  cocial Sciences  American Institutions (Title 5, Section 40404 Requirement)  ective - Select either a lower-division D2 or upper-division D  ifelong Learning and Self-Development  ision E  thnic Studies	4 4 4
C1 C2 Lower-Div Upper-Div Area D S D1 Area D Ele course. Area E L Lower-Div Area F E	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  cocial Sciences  American Institutions (Title 5, Section 40404 Requirement)  ective - Select either a lower-division D2 or upper-division D  ifelong Learning and Self-Development ision E  thnic Studies ision F	4 4 4
C1 C2 Lower-Div Upper-Div Area D S D1 Area D Ele course. Area E L Lower-Div Area F E Lower-Div Total GE	Humanities  ision C Elective - Select a course from either C1 or C2.  ision C  cocial Sciences  American Institutions (Title 5, Section 40404 Requirement)  ective - Select either a lower-division D2 or upper-division D  ifelong Learning and Self-Development ision E  thnic Studies ision F	4 4 4



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#### **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 Engineering for a Sustainable **EE/CPE 439** Introduction 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. EE 495 Cooperative Education Experience 4 EE 502 Microwave Component and System EE 504 Software Defined Radio EE 516 Pattern Recognition EE/CPE 521 **Computer Systems** EE/CPE 522 Advanced Real-Time Operating Systems EE/CPE 523 Digital Systems Design EE 529 Microwave Device Electronics EE 531/CPE 541 Advanced VLSI Design EE 534 **Advanced Photonic Systems** Advanced Real Time Embedded Systems EE/CPE 542 **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 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**

	to track all your gra	duation requi
Power Cond	centration	
EE 406	Power Systems Analysis I	4
or EE 410	Power Electronics I	
Approved Ele	ectives	
Select from th	ne 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 Ele	ctives	
Select from th	ne 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



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S OAI	II OLI
EE 530	Fourier Optics
EE 533	Antennas
EE 570	Selected Advanced Topics
EE Senior De	esign Laboratory Electives
EE 400	Special Problems <sup>5</sup>
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 EE 458	Digital Communication Systems Laboratory
	Photonic Engineering Laboratory
EE 459	Digital Signal Processing Laboratory
EE 471 EE/CPE 472	Selected Advanced Laboratory
EE 473/BMED	Digital Control Systems Laboratory
435/MATE 435	Microfabrication Laboratory
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 Elec	tives
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 CPE 315	Survey of Biochemistry and Biotechnology
CPE 313	Computer Architecture
CPE 416	Computer Hardware Architecture and Design 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 IME 457	Reliability for Design and Testing
IME/MATE	Advanced Electronic Manufacturing
458/CPE 488	Microelectronics and Electronics Packaging
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
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Radio Freque	to track all your graduat ency - Microwaves - Photonics Concentration	ion red
Approved Ele		
Select from the		9
EE 423/MATE	Micro/Nano Fabrication	٦
430/BMED 43	WILLIO, Natio Fabrication	
EE 473/MATE	Microfabrication Laboratory	
435/BMED	Wilci Grabileation Laboratory	
MATE 210	Materials Engineering	
MATE 215	Materials Lingingering  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	•	
PHYS 423	Electromagnetic Fields and Waves I	
Technical Elec	Advanced Optics	
Select from the		11
EE 403	Introduction to Photonics and Fiber Optics	1
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 43	Wilco of Nation abrication	
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	nataneca optics	20
	t be double-counted as an Approved Flective and a Technical Flec	

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



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MATH 451	Niversariaal Analysis I	1 1	Systems Co	to track all your gradua	tion requ
MATH 451	Numerical Analysis I		Approved Ele		
MATH 453	Numerical Analysis II				10
ME 302	Numerical Optimization		Select from the BMED 310		9
ME 405	Thermodynamics I		CPE/CSC 202	Biomedical Engineering Measurement and Analysis	
ME 415	Mechatronics		CPE/CSC 202	Data Structures	
MU 311	Energy Conversion		CPE 333	Project-Based Object-Oriented Prog & Design	
MU 312	Sound Design: Technologies		IME 301	Computer Hardware Architecture and Design	
MU 411	Sound Design: Recording		IME 305	Operations Research I	
PHYS 305	Sound Design: Synthesis		MATH 206	Operations Research II	
PHYS 306	Classical Mechanics I			Linear Algebra I	
	Classical Mechanics II		MATH 306	Linear Algebra II	
PHYS 310 PHYS 313	Physics of Energy		MATH 408	Complex Analysis I	
	Introduction to Atmospheric Physics		MATH 409	Complex Analysis II	
PHYS 318 PHYS 322	Special Theory of Relativity		MATH 451	Numerical Analysis I	
	Vibrations and Waves		ME 211	Engineering Statics	
PHYS 403	Particle and Nuclear Physics		ME 212	Engineering Dynamics	
PHYS 405	Quantum Mechanics I		PHYS 322	Vibrations and Waves	
PHYS 406	Quantum Mechanics II		PHYS 323	Optics	
PHYS 408	Electromagnetic Fields and Waves I		PHYS 417	Nonlinear Dynamical Systems	
PHYS 409	Electromagnetic Fields and Waves II		Technical Elec	ctives <sup>*</sup>	
PHYS 412	Solid State Physics		Select from the	e following:	11
PHYS 417	Nonlinear Dynamical Systems		BMED 440	Bioelectronics and Instrumentation	
PHYS 423	Advanced Optics		CPE 315	Computer Architecture	
PHYS 452	Solid State Physics Laboratory		CPE 333	Computer Hardware Architecture and Design	
	neering Electives		CPE/CSC 357	Systems Programming	
Select from the	following: <sup>1,2,6</sup>	9	CPE/EE 414	Robotic Systems Integration	
BIO 111	General Biology		CPE 416	Autonomous Mobile Robotics	
BMED 212	Introduction to Biomedical Engineering Design		CPE/EE 428	Computer Vision	
BMED 310	Biomedical Engineering Measurement and		CPE/EE 432	Digital Control Systems	
BMED 450	Contemporary Issues in Biomedical		CPE/EE 442	Real Time Embedded Systems	
CHEM 125	General Chemistry for Physical Science and		CPE/EE 447	Stringed Musical Instrument Acoustics, Mechanics,	
CHEM 212	Introduction to Organic Chemistry			and Transducer Design	
CHEM 313	Survey of Biochemistry and Biotechnology		CPE 464	Introduction to Computer Networks	
CPE 290	Selected Topics (Introduction to C++		CPE/EE 472	Digital Control Systems Laboratory	
CPE 315	Computer Architecture		EE 403	Introduction to Photonics and Fiber Optics	
CPE 333	Computer Hardware Architecture and Design		EE 415	Communication Systems Design	
CSC/CPE 202	Data Structures		EE 416	Digital Communication Systems	
CSC/CPE 203	Project-Based Object-Oriented Programming		EE 419	Digital Signal Processing	
CSC 248	Discrete Structures		EE 424	Introduction to Remote Sensing	
CSC/CPE 357	Systems Programming		EE 425	Analog Filter Design	
EE 261	Intro C Programming with a Hardware		EE 440	Wireless Communications	
EE 262	Intro C++ Programming with a Hardware		EE 443	Introduction to Photonics and Fiber Optics Laboratory	
EE/PHYS 422	Polymer Electronics Laboratory		EE 455	Analog Filter Design Laboratory	
IME 142	Manufacturing Processes: Materials Joining		EE 456	Digital Communication Systems Laboratory	
IME 143	Manufacturing Processes: Material Removal		EE 459	Digital Signal Processing Laboratory	
IME 301	Operations Research I		EE 475	Communication Networks and Systems Lab	
IME 305	Operations Research II		EE 480	Wireless Communications Laboratory	
IME 314	Engineering Economics		EE 504	Software Defined Radio	
IME 315	Financial Decision Making for Engineers		EE 509	Computational Intelligence	
MATE 210	Materials Engineering		EE 513	Control Systems Theory	
MATE 215	Materials Laboratory I		EE 514	Advanced Topics in Automatic Control	
MATE 232	Materials, Ethics, and Society		EE 515	Discrete Time Filters	
MATE 340	Electronic Materials Systems		EE 516	Pattern Recognition	
MATE	Micro/Nano Fabrication		EE 525	Stochastic Processes	
430/BMED			EE 526	Advanced Digital Communications	
MATE/BMED	Microfabrication Laboratory		EE 528	Digital Image Processing	
435/EE 473	·		IME 301	Operations Research I	
MATH 206	Linear Algebra I		IME 305	Operations Research II	
MATH 248	Methods of Proof in Mathematics		MATH 306	Linear Algebra II	
MATH 304	Vector Analysis		MATH 406	Linear Algebra III	
•	•		•	-	•



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	to tra	ick all your graduation requi
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	
<b>Total Units</b>		20
1 A course cann	not be double-counted as a Approved Elective and a	Technical Elective.

MATH 452 MATH 453 MATH 453 MIME 211 MATH 453 ME 212 ME 212 ME 228 ME 228 ME 228 ME 251 ME 251 ME 302 ME 302 ME 341 PHYS 212 PHYS 310 PHYS 310 PHYS 313 Introduction to Atmospheric Physics PHYS 315 PHYS 315 PHYS 316 PHYS 317 PHYS 318 PHYS 318 PHYS 318 PHYS 319 PHYS 320 PHYS 321 PHYS 321 PHYS 403 PHYS 403 PHYS 403 PHYS 405 PHYS 405 PHYS 406 Quantum Mechanics I PHYS 406 PHYS 407 PHYS 408 PHYS 408 PHYS 409 PHYS 409 PHYS 409 PHYS 412 Solid State Physics PHYS 423 PHYS 424 Advanced Optics PHYS 424 PHYS 424 PHYS 425 PHYS 424 PHYS 452 Solid State Physics Laboratory	
MATH 452 MATH 453 Mumerical Analysis II MATH 453 Mumerical 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 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 PHYS 412 Solid State Physics PHYS 417 Nonlinear Dynamical Systems PHYS 423 Advanced Optics	
MATH 452 MATH 453 Mumerical Analysis II MATH 453 Mumerical 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 PHYS 408 Electromagnetic Fields and Waves I PHYS 409 Electromagnetic Fields and Waves II PHYS 412 Solid State Physics PHYS 417 Nonlinear Dynamical Systems	
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MATH 452 Math 453 Math 453 Mumerical Analysis II Math 453 Mumerical 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	
MATH 452 Math 453 Math 453 Mumerical Analysis II MATH 453 Mumerical 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	
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MATH 452 MATH 453 Mumerical Analysis II MATH 453 Mumerical 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	
MATH 452 MATH 453 Mumerical Analysis II MATH 453 Mumerical 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	
MATH 452  MATH 453  Mumerical Analysis II  MATH 453  Mumerical 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	
MATH 452  MATH 453  Mumerical Analysis II  MATH 453  Mumerical 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	
MATH 452  MATH 453  Mumerical Analysis II  MATH 453  Mumerical 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	
MATH 452  MATH 453  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	
MATH 452  MATH 453  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	
MATH 452  MATH 453  Mumerical Analysis II  MATH 453  ME 211  Engineering Statics  ME 212  Engineering Dynamics  ME 228  Engineering Design Communication  ME 251  Introduction to Detailed Design with Solid	
MATH 452  MATH 453  Mumerical Analysis II  MATH 453  ME 211  Engineering Statics  ME 212  Engineering Dynamics  ME 228  Engineering Design Communication	
MATH 452  MATH 453  Me 211  ME 212  ME 212  ME 212  ME 212  Numerical Analysis II  Numerical Optimization  Statics  ME 212  Engineering Statics	
MATH 452 Numerical Analysis II MATH 453 Numerical Optimization ME 211 Engineering Statics	
MATH 452 Numerical Analysis II MATH 453 Numerical Optimization	
MATH 452 Numerical Analysis II	
Trainer and Traine	
In the interior Analysis i	
MATH 451 Numerical Analysis I	
MATH 412 Introduction to Analysis I	
MATH 409 Complex Analysis II	
MATH 408 Complex Analysis I	
MATH 406 Linear Algebra III	
MATH 306 Linear Algebra II	

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