

BS in Electrical Engineering

Many products and services in modern society are based upon the work of electrical engineers. Electrical engineering majors learn the physics of electricity and magnetism; mathematics of circuits and systems; and engineering tools of analysis and design. Electrical engineers design, develop, build and test electrical and electronic devices and systems. For instance, electrical communication systems involving, wire, optical fiber, or wireless technology abound in radio, television, cellphones, and computer networks. Advances in electronics have made possible instrumentation systems for use in all branches of the physical and biological sciences, as well as in most areas of engineering. The reduction in cost and size of digital electronic devices has led to an explosive growth in the use of embedded computing in many application domains. Digital signal processing has enabled information extraction and processing capabilities unforeseen with analog technology in areas of video and music, environmental sciences, biomedical imaging, communication and computer systems. Electric energy is controlled and distributed by a complex transmission and distribution network that is essential to the functionality of modern society. New electric and electronic systems and devices are enabling the control of the flow of energy in a multitude of systems that affect our lives in many different ways.

The electrical engineering curriculum builds upon the physical, mathematical and electrical engineering sciences integrated with engineering tools of analysis and design to prepare an electrical engineer that can contribute to the needs of El Paso del Norte region and the nation. Students in the EE Program can specialize in thematic focus areas such as: (i) Communications, Systems, and Signal Processing, (ii) Fields, Electronics and Devices, (iii) Computer Engineering, and (iv) General Electrical Engineering. New focus areas are being developed in Biomedical Engineering, and Electric Power and Energy.

Marketable Skills

1. Ability to Identify, formulate, and solve electrical engineering problems by applying advanced math, science, and engineering principles.
2. Ability to apply engineering design to produce solutions that meet specified needs under realistic constraints.
3. Ability to communicate effectively with a range of audiences.
4. Ability to recognize ethical and professional responsibilities in engineering situations.
5. Ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. Ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

The BS Degree in Electrical Engineering consists of 128 semester credit hours divided into a lower division, providing diverse courses over a broad base of technical subjects, and an upper-division providing more specialized courses.

Vision

The Department of Electrical & Computer Engineering will provide programs of the highest quality to produce world-class engineers who can address challenges of the millennium.

Mission

The Electrical Engineering Program will:

- Dedicate itself to providing its students with the skills, knowledge, and attitudes that will allow its graduates to succeed as engineers and leaders.
- Maintain a vital, state-of-the art research enterprise that provides its students and faculty with opportunities to create, interpret, apply and disseminate knowledge.
- Prepare its graduates for life-long learning to meet intellectual, ethical, and career challenges.
- Recognize and act upon the special mandate to make high-quality engineering education available to the residents of El Paso and the surrounding region.

Educational Objectives

As individuals and as members of teams, our graduates will be able to:

- Our graduates should apply their knowledge and skills to electrical engineering practice or to pursue advanced education successfully as demonstrated by some of the following:
 - Completion of certificates, graduate degrees, or professional licensing
 - Sustained employment and/or full-time graduate school in electrical engineering or related area
 - Advancement and/or recognition in employment
- Our graduates should demonstrate creativity, leadership and entrepreneurial thinking in the practice of engineering as demonstrated by some of the following

- Leadership roles in their organizations, their profession, and/or in society
- Effective participation in disciplinary and multidisciplinary teams
- Successful development and/or improvement of products, processes, and/or systems
- Our graduates should engage successfully in professional communication as demonstrated by some of the following
 - Publication of technical articles, engineering reports, and/or proposals
 - Effective participation in disciplinary and multidisciplinary teams
 - Presentation of their work at professional meetings or conferences
- Our graduates should exhibit social and professional responsibility in the practice of engineering as demonstrated by some of the following
 - Involvement in community service
 - Evidence of commitment to lifelong learning
 - Membership in professional organizations

Student Outcomes

These Educational Objectives are supported by the following student outcomes. Attainment of these outcomes prepares program graduates to enter the professional practice of engineering.

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Fast Track

The Fast-Track Program (<http://catalog.utep.edu/admissions/undergraduate/fast-track/#text>) enables outstanding undergraduate UTEP students to receive both undergraduate and graduate credit for up to 15 hours of UTEP course work as determined by participating Master's and Doctoral programs.

Not all undergraduate programs have elected to participate in the Fast Track option, so students should see their departmental graduate advisor for information about requirements and guidelines. A list of courses that have been approved for possible use at the graduate level is found here (<http://catalog.utep.edu/admissions/undergraduate/fast-track/#fasttrackcoursestext>).

Fast-Track Combined BSEE/Master Program in Electrical or Computer Engineering

Students with at least 90 hours accumulated toward their BSEE degree and a cumulative GPA of at least 3.30 may be eligible for admission into the fast-track BSEE/Master Program. Students admitted to this program take graduate classes that count both toward graduate degree requirements and undergraduate degree requirements, for up to 15 credit hours of ECE graduate courses per approval of the undergraduate and graduate advisors. Eligible ECE graduate courses come from a list approved for fast-track by the ECE Faculty. Students must earn a B or better in the graduate course to count as graduate credit for the Master of Science in Electrical Engineering or for the Master of Science in Computer Engineering. If the grade is a C, it will not count towards the graduate degree but will still count towards the undergraduate degree.

Degree Plan

BS in Electrical Engineering with Concentration

Required Credits: 128

Code	Title	Hours
University Core Curriculum		
Complete the University Core Curriculum requirements. (p. 6)		42
Concentration Required		
This program requires the selection of a concentration.		
Electrical Engineering Designated Core (All courses require a grade of C or better.)		
Required Courses:		
CE 2326	Econ for Engrs & Scientists	3
CS 1320	Computer Programming Sci/Engr	3
PHYS 2320	Introductory Mechanics	3

PHYS 2120	Laboratory for PHYS 2320	1
PHYS 2321	Introductory Electromagnetism	3
PHYS 2121	Laboratory for PHYS 2321	1
MATH 1508	Precalculus (Listed if completed, but not required)	3-5
or MATH 1310	Trigonometry and Conics	
or MATH 1411	Calculus I	

Electrical Engineering Core (Lower) (All courses require a grade of C or better.)

Required Courses:

ECE 1100	Lab for ECE 1300	1
ECE 1300	Intro to Electr/Comp Eng	3
ECE 2102	Lab for ECE 2302	1
ECE 2103	Lab for ECE 2303	1
ECE 2301	Electric Circuits I	3
ECE 2302	Electric Circuits II	3
ECE 2331	Cont. Time Signals & Systems	3
ECE 2303	Digital Systems Design I	3
ECE 2300	Software Design I	3
MATH 1312	Calculus II	3
MATH 1411	Calculus I	4
MATH 2313	Calculus III	3
MATH 2326	Differential Equations	3

Select one of the following:

BIOL 1305	General Biology	3
CHEM 1305	General Chemistry	3
MATH 2300	Discrete Mathematics	3

Electrical Engineering Core (Upper)

Required Courses:

ECE 3141	Lab for ECE 3341	1
ECE 2104	Lab for ECE 2304	1
ECE 3100	Junior Prof. Orientation	1
ECE 3320	Electromagnetic Field Theory	3
ECE 3343	Applied Quantum Mech for EE	3
ECE 3344	Fund. of Semiconductor Dev	3
ECE 3341	Electronics I	3
ECE 3342	Electronics II	3
ECE 3331	Discrete Time Signals & Sys	3
ECE 2304	Microprocessor Systems I	3
ECE 3332	Prob with App Elect/Comp Eng	3
ECE 4203	EE Capstone Project Lab I	2
ECE 4204	EE Capstone Project Lab II	2
MATH 3323	Matrix Algebra ^C	3

Select one of the following:

ECE 3170	Lab for ECE 3370	1
ECE 3193	Undergraduate Service Learning	
ECE 3194	Undergraduate Research	
ECE 4153	Lab for ECE 4353	
ECE 4140	Lab for ECE 4340	
ECE 4191	Engineering Problems	
ECE 4154	Lab for ECE 4354	
ECE 4190	Special Topics Lab in ECE	
ECE 4182	Co-op Work Experiences	
ECE 4183	Co-op Work Experiences	

ECE 4145	Biomedical Instrumentation Lab	
ECE 4193	Undergrad Services Learning	
ECE 4194	Undergraduate Research	
ECE 4190	Special Topics Lab in ECE	
Professional Options:		
Select three hours of Professional Options approved by the department advisor:		3
Concentration		
Complete one of the following concentrations		12
Total Hours		128

^c Courses require a grade of C or better.

Computer Engineering

Students in this concentration study the science and technology of design, construction, implementation, and maintenance of software and hardware components of modern computing systems, computer controlled equipment, and networks of intelligent devices.

Code	Title	Hours
Computer Engineering Concentration		
Select 12 hours from the following:		12
ECE 3350	Software Design II	
ECE 4353	Digital Systems Design II	
ECE 4360	Foundations of Deep Learning	
ECE 4361	Fuzzy Logic and Engineering	
ECE 4391	Engineering Problems Seminar	
ECE 3352	Operating System Design	
ECE 4355	VLSI Design	
EE 4376	CMOS Digital Circuit Design	
ECE 4354	Microprocessor Systems II	
ECE 3351	Computer Architecture	
ECE 4394	Undergraduate Research	
ECE 4390	Special Topics	

Fields and Devices

Students in this concentration study the physical foundations for materials and devices used in modern electronic and optoelectronic systems as well as different aspects of applied electromagnetics. They also learn the engineering principles for the design and development of devices and systems.

Code	Title	Hours
Fields and Devices Engineering Concentration		
Select 12 hours from the following:		12
ECE 3310	Energy Conversion	
ECE 4320	Applied Electromagnetics	
ECE 4341	Theory & Appl Contemp Devices	
ECE 4340	VLSI Nanotechnology	
ECE 4336	Fiber Optic Communication	
ECE 4391	Engineering Problems Seminar	
ECE 4355	VLSI Design	
EE 4376	CMOS Digital Circuit Design	
ECE 4310	Applied Photovoltaics	
ECE 4321	Microwave Engineering	
ECE 4322	Antenna Engineering	
ECE 4312	Transmission Power Flow Cont.	
ECE 4301	Computational Methods In EE	
ECE 4315	Intro to Power Electronics	
ECE 4323	High Resolution Radar	

ECE 4394	Undergraduate Research
ECE 4390	Special Topics

General Electrical Engineering

Students in this concentration have the opportunity to acquire a broad background in electrical engineering by taking selection of courses across different sub-disciplines in electrical engineering.

Code	Title	Hours
General Electrical Engineering Concentration		
Select 12 hours from the following:		12
ECE 3370	Intro to Communication Netwks	
ECE 3350	Software Design II	
ECE 3310	Energy Conversion	
ECE 4353	Digital Systems Design II	
ECE 4320	Applied Electromagnetics	
ECE 4341	Theory & Appl Contemp Devices	
ECE 4340	VLSI Nanotechnology	
ECE 4332	Real-Time Digital Signal Proc	
EE 4357	Biomechatronics	
EE 4358	Med Diag & Therap Instrum	
ECE 4383	Biomedical Signal & Image Proc	
EE 4360	Telemedicine & Imaging Inform	
ECE 4336	Fiber Optic Communication	
ECE 4338	Systems and Controls	
ECE 4360	Foundations of Deep Learning	
ECE 4361	Fuzzy Logic and Engineering	
ECE 4391	Engineering Problems Seminar	
ECE 3352	Operating System Design	
ECE 4355	VLSI Design	
EE 4376	CMOS Digital Circuit Design	
ECE 4310	Applied Photovoltaics	
ECE 4354	Microprocessor Systems II	
ECE 3351	Computer Architecture	
ECE 4321	Microwave Engineering	
ECE 4322	Antenna Engineering	
ECE 4330	Digital Signal Processing	
ECE 4312	Transmission Power Flow Cont.	
ECE 4345	Biomedical Instrumentation	
ECE 4301	Computational Methods In EE	
ECE 4315	Intro to Power Electronics	
ECE 4335	Digital Communications	
ECE 4323	High Resolution Radar	
ECE 4394	Undergraduate Research	
ECE 4390	Special Topics	
ECE 4396	Practicum in Elect & Comp Eng	

Power and Energy Systems Engineering

Students in this concentration study the development, planning, design, construction, maintenance, installation and operation of electric power systems for the safe, sustainable, economic and reliable conversion, generation, transmission, distribution, storage and usage of electric energy, including its measurement and control.

Code	Title	Hours
Power and Energy Systems Engineering Concentration		
Select 12 hours from the following:		12

ECE 3310	Energy Conversion
ECE 4391	Engineering Problems Seminar
ECE 4312	Transmission Power Flow Cont.
ECE 4315	Intro to Power Electronics
ECE 4394	Undergraduate Research
ECE 4390	Special Topics

Biomedical Engineering

Students in this concentration study the development and application of engineering concepts and methods to provide new solutions to biological, medical and healthcare problems.

Code	Title	Hours
Biomedical Engineering Concentration		
Select 12 hours from the following:		12
EE 4357	Biomechatronics	
EE 4358	Med Diag & Therap Instrum	
ECE 4383	Biomedical Signal & Image Proc	
EE 4360	Telemedicine & Imaging Inform	
ECE 4338	Systems and Controls	
ECE 4391	Engineering Problems Seminar	
ECE 4345	Biomedical Instrumentation	
ECE 4394	Undergraduate Research	
ECE 4390	Special Topics	

Signal Processing, Systems and Communications

Students in this concentration study the theory, applications, algorithms, and implementation of devices and systems for the generation, transformation, extraction, transmission, understanding and interpretation of information contained in signals. They also learn about how this information can be used to analyze, optimize, and control dynamic systems.

Code	Title	Hours
Signal Processing, Systems and Communications Engineering Concentration		
Select 12 hours from the following:		12
ECE 3370	Intro to Communication Netwks	
ECE 4332	Real-Time Digital Signal Proc	
ECE 4336	Fiber Optic Communication	
ECE 4338	Systems and Controls	
ECE 4391	Engineering Problems Seminar	
ECE 4330	Digital Signal Processing	
ECE 4335	Digital Communications	
ECE 4323	High Resolution Radar	
ECE 4394	Undergraduate Research	
ECE 4390	Special Topics	

I. Communication (six hours)

Code	Title	Hours
Courses in this category focus on developing ideas and expressing them clearly, considering the effect of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience.		
Select six hours of the following:		6

For students whose secondary education was in English:

COMM 1611	Written and Oral Communication
ENGL 1313	Writing About Literature
RWS 1301	Rhetoric & Composition I
RWS 1302	Rhetoric & Composition 2

RWS 1601	Rhetoric, Composition & Comm	
For students whose secondary education was not in English:		
ESOL 1311	Expos Engl Compos-Spkr Esl	
ESOL 1312	Res & Crit Writng Spkr Esl	
TOTAL HOURS		6

II. American History (six hours)

Code	Title	Hours
Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role.		
HIST 1301	History of U.S. to 1865	3
HIST 1302	History of U.S. Since 1865	3
TOTAL HOURS		6

III. Language, Philosophy & Culture (three hours)

Code	Title	Hours
Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures.		
Select one of the following:		
		3
AFST 2300	Intro-African Amer Studies	
CHIC 2302	Latina/o Presence in the U.S.	
ENGL 2311	English Literature	
ENGL 2312	English Literature	
ENGL 2313	Intro to American Fiction	
ENGL 2314	Intro to American Drama	
ENGL 2318	Intro to American Poetry	
FREN 2322	Making of the "Other" Americas	
HIST 2301	World History to 1500	
HIST 2302	World History Since 1500	
PHIL 1301	Introduction to Philosophy	
PHIL 2306	Ethics	
RS 1301	Introduct to Religious Studies	
SPAN 2340	Seeing & Naming: Conversations	
WS 2300	Introduction to Womens Studies	
WS 2350	Global Feminisms	
TOTAL HOURS		3

IV. Mathematics (three hours)

Code	Title	Hours
Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experience.		
Select one of the following:		
		3
MATH 1309	College Algebra	
MATH 1310	Trigonometry and Conics	
MATH 1319	Math in the Modern World	
MATH 1320	Math for Social Sciences I	
MATH 1411	Calculus I	
MATH 1508	Precalculus	
MATH 2301	Math for Social Sciences II	
STAT 1380	Statistical Literacy	

STAT 2480

Elementary Statistical Methods

TOTAL HOURS**3****V. Life & Physical Sciences (six hours)**

Code	Title	Hours
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Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on experiences.

Select one of the following:

ASTR 1107	Astronomy Lab I	
ASTR 1307	Elem Astronomy-Solar System	
ASTR 1308	Elem Astr Stars & Galaxies	
BIOL 1103	Introductory Biology Lab	
BIOL 1104	Human Biology Laboratory	
BIOL 1107	Topics in Study of Life I	
BIOL 1108	Organismal Biology Laboratory	
BIOL 1203	Introductory Biology	
BIOL 1304	Human Biology	
BIOL 1305	General Biology	
BIOL 1306	Organismal Biology	
BIOL 2111	Human Anat/Physio Lab I	
BIOL 2113	Human Anat/Physio Lab II	
BIOL 2311	Human Anat/Physiology I	
BIOL 2313	Human Anat/Physiology II	
CHEM 1105	Laboratory for CHEM 1305	
CHEM 1106	Laboratory for CHEM 1306	
CHEM 1107	Intro General Chemistry Lab	
CHEM 1108	Intro Organic & Biochem Lab	
CHEM 1305	General Chemistry	
CHEM 1306	General Chemistry	
CHEM 1307	Intro to General Chemistry	
CHEM 1308	Intro Organic & Biochemistry	
ESCI 1101	Environmental Sci. Lab	
ESCI 1102	Non-major Lab for ESCI 1301	
ESCI 1301	Intro to Environmental Sci	
GEOG 1106	Laboratory for GEOG 1306	
GEOG 1306	Physical Geography	
GEOL 1103	Lab for GEOL 1313	
GEOL 1104	Lab for GEOL 1314	
GEOL 1111	Principles of Earth Sci - Lab	
GEOL 1112	Laboratory for Geology 1212	
GEOL 1211	Principles of Earth Sciences	
GEOL 1212	Principles of Earth Science	
GEOL 1230	The Blue Planet	
GEOL 1231	Natural Hazards	
GEOL 1313	Intro to Physical Geology	
GEOL 1314	Intro to Historical Geol	
HSCI 2302	Fundamentals of Nutrition	
HSCI 2303	Wellness Dynamics	
MICR 2330	Microorganisms and Disease	
PHYS 1403	General Physics I	
PHYS 1404	General Physics II	
PHYS 2120	Laboratory for PHYS 2320	

PHYS 2121	Laboratory for PHYS 2321	
PHYS 2320	Introductory Mechanics	
PHYS 2321	Introductory Electromagnetism	
TOTAL HOURS		6

VI. Political Science (six hours)

Code	Title	Hours
Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations.		
Required Courses:		
POLS 2310	Introduction to Politics	3
POLS 2311	American Gover & Politics	3
TOTAL HOURS		6

VII. Social & Behavioral Sciences (three hours)

Code	Title	Hours
Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture.		
Select one of the following:		
ANTH 1301	Intro-Phys Anth/Archeolog	3
ANTH 1302	Intro-Cultural Anthropology	
ANTH 1310	Cultural Geography	
ANTH 2320	Intro to Linguistics	
ASIA 2300	Asian American Studies	
CE 2326	Econ for Engrs & Scientists	
CHIC 2311	Intro to Chicano Studies	
COMM 2350	Interpersonal Communication	
COMM 2372	Mass Media and Society	
ECON 2303	Principles of Macroeconomics	
ECON 2304	Principles of Microeconomics	
EDPC 1301	Introduction to Ed Psychology	
EDU 1342	Action Research in Classrooms	
ENGL 2320	Introduction to Linguistics	
GEOG 1310	Cultural Geography	
LEAD 2300	Leadership in Action	
LING 2320	Introduction to Linguistics	
LING 2340	Lang. Inside & Out: Sel Topics	
PSYC 1301	Introduction to Psychology	
SOCI 1301	Introduction to Sociology	
SOCI 1310	Cultural Geography	
TOTAL HOURS		3

VIII. Creative Arts

Code	Title	Hours
Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art.		
Select one of the following:		
ART 1300	Art Appreciation	3
ARTH 1305	History of Art I	
ARTH 1306	History of Art II	
CHIC 1311	Chicana/o Fine Arts Appreciat	

DANC 1304	Introduction to Dance	
FILM 1390	Intro-Art of Motion Pict.	
MUSL 1324	Music Appreciation	
MUSL 1327	Jazz to Rock	
MUSL 2321	Music, Culture, and Society	
THEA 1313	Introduction to Theatre	

TOTAL HOURS **3**

IX. Component Area Option (six hours)

Code	Title	Hours
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a. A minimum of 3 SCH must meet the definition and corresponding Core Objectives specified in one of the foundational component areas. b. As an option for up to 3 semester credit hours of the Component Area Option, an institution may select course(s) that: (i) Meet(s) the definition specified for one or more of the foundational component areas; and (ii) Include(s) a minimum of three Core Objectives, including Critical Thinking Skills, Communication Skills, and one of the remaining Core Objectives of the institution's choice.

BUSN 1301	Intro to Global Business	
COMM 1301	Public Speaking	3
COMM 1302	Business/Profession Comm	
CS 1310	Intro-Computational Thinking	
CS 1320	Computer Programming Sci/Engr	
EL 1301	Eng Innovation and Leadership	
ENGR 1302	Engineering Design Experience	
ENGR 1303	Applied Engineering Analysis	
LEAD 1300	Introduction to Leadership	
SCI 1301	Inquiry in Math & Science	
SPLP 1312	Comm. Var. Across the Lifespan	
UNIV 1301	Seminar/Critical Inquiry	

TOTAL HOURS **6**

4-Year Sample Degree Plan

BS Electrical Engineering (Starting with Pre-calculus)

Code	Title	Hours
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BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

Summer

(if needed)

MATH 1508	Precalculus	3-5
or MATH 1310	Trigonometry and Conics	

FRESHMAN

Fall

RWS 1301	Rhetoric & Composition I	3
EL 1301	Eng Innovation and Leadership	3
or COMM 1302	Business/Profession Comm	
CS 1320	Computer Programming Sci/Engr	3
ECE 1300	Intro to Electr/Comp Eng	4
& ECE 1100	and Lab for ECE 1300	
MATH 1411	Calculus I	4

Spring

HIST 1301	History of U.S. to 1865	3
RWS 1302	Rhetoric & Composition 2	3
PHYS 2320	Introductory Mechanics	4
& PHYS 2120	and Laboratory for PHYS 2320	
ECE 2303	Digital Systems Design I	4
& ECE 2103	and Lab for ECE 2303	
MATH 1312	Calculus II	3

SOPHOMORE

Fall

CE 2326	Econ for Engrs & Scientists	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
ECE 2300	Software Design I	3
ECE 2301	Electric Circuits I	3
MATH 2326	Differential Equations	3

Spring

HIST 1302	History of U.S. Since 1865	3
ECE 2302 & ECE 2102	Electric Circuits II and Lab for ECE 2302	4
ECE 2304 & ECE 2104	Microprocessor Systems I and Lab for ECE 2304	4
ECE 3331	Discrete Time Signals & Sys	3
MATH 2313	Calculus III	3

JUNIOR

Fall

ECE 3341 & ECE 3141	Electronics I and Lab for ECE 3341	4
ECE 2331	Cont. Time Signals & Systems	3
ECE 3343	Applied Quantum Mech for EE	3
ECE 3320	Electromagnetic Field Theory	3
MATH 3323	Matrix Algebra	3

Spring

Creative Arts (Core)		3
ECE 3344	Fund. of Semiconductor Dev	3
ECE 3100	Junior Prof. Orientation	1
ECE 3342	Electronics II	3
ECE 3332	Prob with App Elect/Comp Eng	3
Select Science or Math		3

SENIOR

Fall

POLS 2310	Introduction to Politics	3
Language, Philosophy, and Culture (Core)		3
Choose Experiential Learning		1
ECE 4203	EE Capstone Project Lab I	2
Choose ECE Option courses		3
Choose ECE Option courses		3

Spring

POLS 2311	American Gover & Politics	3
ECE 4204	EE Capstone Project Lab II	2
Choose ECE Option courses		3
Choose ECE Option courses		3
Professional Option		3

Total Hours **131-133**

BS Electrical Engineering (Starting with Calculus)

Code	Title	Hours
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BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

FRESHMAN

Fall

RWS 1301	Rhetoric & Composition I	3
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EL 1301 or COMM 1302	Eng Innovation and Leadership Business/Profession Comm	3
CS 1320	Computer Programming Sci/Engr	3
MATH 1411	Calculus I	4
ECE 1300 & ECE 1100	Intro to Electr/Comp Eng and Lab for ECE 1300	4
Spring		
HIST 1301	History of U.S. to 1865	3
RWS 1302	Rhetoric & Composition 2	3
PHYS 2320 & PHYS 2120	Introductory Mechanics and Laboratory for PHYS 2320	4
ECE 2303 & ECE 2103	Digital Systems Design I and Lab for ECE 2303	4
MATH 1312	Calculus II	3
SOPHOMORE		
Fall		
CE 2326	Econ for Engrs & Scientists	3
PHYS 2321 & PHYS 2121	Introductory Electromagnetism and Laboratory for PHYS 2321	4
ECE 2300	Software Design I	3
ECE 2301	Electric Circuits I	3
MATH 2326	Differential Equations	3
Spring		
HIST 1302	History of U.S. Since 1865	3
ECE 2302 & ECE 2102	Electric Circuits II and Lab for ECE 2302	4
ECE 2304 & ECE 2104	Microprocessor Systems I and Lab for ECE 2304	4
ECE 3331	Discrete Time Signals & Sys	3
MATH 2313	Calculus III	3
JUNIOR		
Fall		
ECE 3341 & ECE 3141	Electronics I and Lab for ECE 3341	4
ECE 2331	Cont. Time Signals & Systems	3
ECE 3343	Applied Quantum Mech for EE	3
ECE 3320	Electromagnetic Field Theory	3
MATH 3323	Matrix Algebra	3
Spring		
Creative Arts (Core)		3
ECE 3344	Fund. of Semiconductor Dev	3
ECE 3100	Junior Prof. Orientation	1
ECE 3342	Electronics II	3
ECE 3332	Prob with App Elect/Comp Eng	3
Select Science or Math		3
SENIOR		
Fall		
POLS 2310	Introduction to Politics	3
Language, Philosophy, and Culture (Core)		3
Choose Experiential Learning		1
ECE 4203	EE Capstone Project Lab I	2
Choose ECE Option courses		3
Choose ECE Option courses		3

Spring

ECE 4204	EE Capstone Project Lab II	2
POLS 2311	American Gover & Politics	3
Choose ECE Option courses		3
Choose ECE Option courses		3
Professional Option		3

Total Hours **128**