Electrical engineering is a broad field with applications in almost all areas of industry including computer systems, control systems, telecommunications, semiconductors, electronics, and electric power. The Department of Electrical Engineering offers a Bachelor of Science in Electrical Engineering (BSEE) degree that is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

This degree provides a broad, solid education in engineering fundamentals as well as the opportunity for in-depth study in specialized topics. Students completing the program will have rigorous foundation for engineering practice in industry as well as for graduate studies in engineering and other disciplines. The program has well-equipped, accessible laboratories and extensive computing facilities.

A – GENERAL EDUCATION CORE – 42 HOURS

Students must fulfill the General Education Core requirements. The courses listed below satisfy both degree requirements and General Education Core requirements.

Required

020 - Mathematics – 3 hours
MATH 2413 Calculus I (or MATH 2487 Honors) three-hour lecture

030 - Life and Physical Science – 6 hours
PHYS 2425 Physics for Scientists and Engineers I three-hour lecture
PHYS 2426 Physics for Scientists and Engineers II three-hour lecture

040 - Language, Philosophy, and Culture – 3 hours
PHIL 2326 Ethics, Technology, and Society

090 - Integrative and Experiential Learning – 6 hours
CSCI 1380 Computer Science I *and* choose any course from Humanities, except PHIL

B – MAJOR REQUIREMENTS – 60 HOURS (48 advanced)

1 – Electrical Engineering Core – 45 hours (33 advanced)
ELEE 1101 Introduction to Electrical Engineering
ELEE 2319 Numerical Computation and Data Visualization
ELEE 2330 Digital Systems Engineering I
ELEE 2130 Digital Systems Engineering I Lab
ELEE 2305 Electrical Circuits I
ELEE 2105 Electrical Circuits Lab
ELEE 3321 Signals and Systems
ELEE 3301 Electronics I
ELEE 3101 Electronics I Lab
ELEE 3225 Electrical Engineering Lab I
ELEE 3230 Electrical Engineering Lab II
ELEE 3302 Electronics II
ELEE 3315 Electromagnetics Engineering
ELEE 3435 Microprocessor Systems
ELEE 4303 Digital Systems Engineering II
ELEE 4321 Automatic Control Systems
ELEE 4351 Communication Theory
ELEE 4328 Solid State Electronic Devices

2 – Senior Design – 6 hours (6 advanced)
ELEE 4361 Senior Design I
ELEE 4362 Senior Design II

3 – Technical Electives – 9 hours (9 advanced)
Choose from:
ELEE 3300 Electrical Engineering Coop/Internship
ELEE 3331 Microcontroller and Embedded Systems Lab
ELEE 3370 Power Electronics
ELEE 3371 Electrical Power Systems
ELEE 4323 Rapid Control Prototyping
ELEE 4325 Introduction to Robotics

ELEE 4333 Topics in Electrical Engineering
ELEE 4360 High Frequency Engineering
ELEE 4364 Antennas and Propagation
ELEE 4365 Digital Signal Processing
ELEE 4366 Image Processing
ELEE 4367 Fiber Optic Communications
ELEE 4368 Electrokinetics for Microsystems
ELEE 4372 Electrical Machines and Power System Fundamentals
ELEE 4373 Renewable Energy
ELEE 4375 Introduction to VLSI Design
ELEE 4380 Computer Architecture
ELEE 4390 Communications Networks

C – SUPPORT COURSES – 23 HOURS (6 advanced)

1 – Physics Lab – 2 hours
PHYS 2425 Physics for Scientists and Engineers I one-hour lab
PHYS 2426 Physics for Scientists and Engineers II one-hour lab

2 – Basic Science or Engineering Electives – 3 hours
Choose from:
CHEM 1307 Chemistry for Engineers
CHEM 1311 General Chemistry I
MECE 2301 Statics

3 – Mathematics – 18 hours (6 advanced)
ELEE 3340 Probability and Statistics for Electrical Engineers
MATH 2346 Mathematics for Electrical and Computer Engineers
MATH 2413 Calculus I (or MATH 2487 Honors) one-hour lecture
MATH 2414 Calculus II (or MATH 2488 Honors)
MATH 2415 Calculus III
MATH 3341 Differential Equations

TOTAL CREDIT HOURS FOR GRADUATION – 125 HOURS
TOTAL ADVANCED HOURS – 54 HOURS

ADMISSION, PROGRESSION, AND GRADUATION REQUIREMENTS, if applicable:

Graduation requirements
- Any course in the degree plan that is a prerequisite or corequisite, directly or indirectly, for an electrical engineering course must be passed with a grade of 'C' or higher. This is a graduation requirement independent of whether th student passess subsequent courses.
- In addition to the graduation requirements listed in the UTRGV 2017-2018 Undergraduate Catalog, demonstration of proficiency in a language other than English is required at the undergraduate level equivalent to a minimum of six credit hours. Proficiency can be demonstrated by a college credit exam, a placement test approved through the UTRGV Department of Writing and Language Studies, and/or up to six credit hours of college-level language coursework.