

DEPARTMENT OF ELECTRICAL ENGINEERING

BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

The electrical engineering degree will prepare you for an exciting and rewarding career in a wide range of areas within the umbrella of the electrical engineering profession. Electrical engineers design and construct systems for aerospace, multimedia, telecommunications, electric power, robotics, signal processing and controls. In the aerospace arena electrical engineers develop new sensors, control and power systems. In communications, new networks are under development that will enhance both data and voice communications. Intelligent robotic systems are being developed to locate survivors in the debris from catastrophic events such as earthquakes. Electrical power systems engineering strive to develop safe, effective and efficient integration of traditional with renewal energy sources to increase capacity in the electrical power grid.

The first two years of curriculum contain the required science, mathematics, engineering, and computer science basics to prepare the student for the upper level courses. The junior and senior years of the traditional electrical engineering curriculum include 6 hours of technical electives, 3 hours of mathematics elective and 6 hours of electrical engineering electives which allow students to concentrate their studies in an area of specialization: electric power, controls and robotics, or communications. The Bachelor of Science in Electrical Engineering program is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. Graduates are eligible to practice and become licensed professional engineers.

It is highly recommended that all freshmen engineering students purchase a laptop computer. The recommended laptop computer specifications are at: <https://www.atu.edu/engineering/specifications.php>.

For a detailed policy regarding transfer credit for the Electrical Engineering programs, please see the [Electrical Engineering Program](#) page.

The following curriculum represents the program of study and a suggested sequence for the Bachelor of Science in Electrical Engineering degree. The student should be aware that not all courses are offered each semester and the ordering of courses is subject to change. In order to minimize scheduling difficulties, each student should schedule a special session with their advisor at the beginning of their junior year to plan the remaining coursework.

Curriculum

Program: Bachelor of Science Electrical Engineering

Major: Electrical Engineering

The matrix below is a sample plan for all coursework required for this major.

Freshman

Fall	Credits
ENGL 1013 ¹	3
FAH 1XXX ¹	3
CHEM 2124 and CHEM 2120	4
MATH 2914	4
ELEG 1011	1
TECH 1001	1
Total Hours	16

Spring	Credits
ENGL 1023 ¹	3
COMS 1011 and COMS 1013	3
MATH 2924	4
ELEG 2130 and ELEG 2134	4
Total Hours	15

Sophomore

Fall	Credits
COMS 2203	3
PHYS 2114 and PHYS 2000	4
MATH 3243	3
ELEG 2103	3
ELEG 3133	3
Total Hours	16

Spring	Credits
PHYS 2124 and PHYS 2010	4
MATH 2934	4
ELEG 2111	1
ELEG 2113	3
STAT 3153	3
Total Hours	15

Junior

Fall	Credits
ELEG 3003 / MCEG 3003	3
ELEG 3103	3
ELEG 3153	3
Technical Elective ³	3
Electrical Engineering Elective ²	3
Total Hours	15

Spring	Credits
ELEG 3123	3
ELEG 3143	3
ELEG 4103	3
ELEG 4202 / MCEG 4202	2
MATH 2703	3
Total Hours	14

Senior

Fall	Credits
SS 1XXX ¹	3

Fall	Credits
USHG 1XXX ¹	3
ELEG 4113 ⁴	3
ELEG 4143	3
ELEG 4191	1
ELEG 4303	3
Total Hours	16

Spring	Credits
FAH 1XXX ¹	3
ELEG 4122	2
ELEG 4192	2
Technical Elective ³	3
Electrical Engineering Elective ^{2, 4}	3
Total Hours	13

¹See appropriate alternatives or substitutions in "[General Education Requirements](#)".

²Engineering Elective must be a 3000 or 4000 level Electrical Engineering course.

³Technical Elective must be a course from Engineering, [MGMT 4203](#), or the Sciences (excluding courses intended for Education Majors). All electives must have approval of the Department.

⁴This program partners the BSEE undergraduate degree with the MSEE degree. A maximum of 12 graduate level credit hours can be counted towards both the BSEE degree in Electrical Engineering and the MSEE degree. Four graduate level courses can be used to replace four upper-division undergraduate courses as follows:

- ELEG 5313 can replace ELEG 4313
- ELEG 5113 can replace ELEG 4113
- ELEG 5153 can replace ELEG 4153
- ELEG 5133 can replace ELEG 4133
- ELEG 5993 can replace ELEG 4993