

# ELECTRONIC SYSTEMS ENGINEERING TECHNOLOGY, BACHELOR OF SCIENCE

## Overview

### Program Description

Engineering Technologists apply engineering and scientific knowledge combined with technical skills to support engineering activities. An engineering team consists of Engineering Scientists, Engineers, Engineering Technologists, and Engineering Technicians. Engineering Technologists' areas of interest and education are application oriented. They typically concentrate their activities on applied design, using current engineering practice. Engineering Technologists play key roles on the engineering team. They are usually involved in product development, manufacturing, product assurance, sales, and program management. The ESET program at A&M-SA emphasizes problem solving, laboratories, and technical skills. It prepares graduates as technical members of engineering teams working in industry, typically in manufacturing, avionics, medical electronics, information technology, and the US military services. There is a heavy emphasis on project based learning in close collaboration with San Antonio based industries and the military establishment.

## Requirements

### General Requirements

Code	Title	Credits
Core Curriculum		42
Required Support Courses		28
University Requirements		4
Major (Required) Courses		36
Electives		10
<b>Total Credits</b>		<b>120</b>

- 30 ESET upper-division hours required for this degree must be completed at A&M-SA to satisfy residency requirement.
- Must complete at least 40 hours of major courses and major electives at A&M-SA.
- Must receive a grade of C or better in all MATH, CSCI, PHYS and ESET courses and their associated prerequisites for satisfactory passing grade.
- A minimum average GPA of 2.25 must be maintained in all ESET core and elective courses to remain in the program. Applies to transfer courses also.
- Academic credits transferred as substitution courses must be completed within previous five years of admission to A&M-SA
- CIP Code: 15.0303

Code	Title	Credits
<b>Core Curriculum</b>		
ENGL 1301	Composition I	3
ENGL 2311	Technical Writing	3
MATH 2312	Pre-Calculus	3
PHYS 2325	University Physics I	3

PHYS 2326	University Physics II	3
Language, Philosophy, and Culture		3
Creative Arts		3
HIST 1301	US History to 1865	3
HIST 1302	US History from 1865	3
GOVT 2305	Federal Government	3
GOVT 2306	Texas Government	3
ECON 2302	Principles of Microeconomics	3
Component Area Option		6

MATH 2313	Calculus I	
MATH 2314	Calculus II	
Subtotal:		42

### Required Support Courses

CHEM 1111	General Chemistry Lab I	1
CHEM 1311	General Chemistry I	3
PHYS 2125	University Physics Lab I	1
PHYS 2126	University Physics Lab II	1
MATH 2113	Calculus I Lab	1
MATH 2114	Calculus II Lab	1
UNIV 1301	First Year Seminar	3
MATH 2313	Calculus I	3
MATH 2314	Calculus II	3
CSCI 1436	Programming Fundamentals I	4
CSCI 1437	Programming Fundamentals II	4
ENTC 1301	Principles of Engineering Tech	3
Subtotal:		28

### University Requirements

UNIV 1301	First Year Seminar	3
STEM 4101	Jaguar Tracks IV-Science/Math	1
Subtotal:		4

### Major (Required) Courses

ESET 2301	AC and DC Circuits	4
& ESET 2101	and AC and DC Circuits Lab	
ESET 2302	Analog Circuits	4
& ESET 2102	and Analog Circuits Lab	
ESET 3301	Digital Electronics	4
& ESET 3101	and Digital Electronics Lab	
ESET 3302	Found of Wireless Commun I	4
& ESET 3101	and Digital Electronics Lab	
ESET 3303	Found of Wireless Commun II	4
& ESET 3103	and Found of Wireless Commun II	
ESET 3304	Programmable Logic Controllers	4
& ESET 3104	and Programmable Logic Controllers	
ESET 3205	Near and Far Field Communicati	3
& ESET 3105	and Near and Far Field Commu Lab	
ESET 4201	Control Systems	3
& ESET 4101	and Control Systems Lab	
ESET 4202	Electronics Testing	3
& ESET 4102	and Electronics Testing Lab	
ESET 4304	Electronic Systems Capstone Pr	3
Subtotal:		36

<b>Electives (10 SCH from any three lecture + lab courses listed below)</b>		<b>10</b>
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ESET 4203 & ESET 4103	Digital Hardware Design and Digital Hardware Design Lab	
ESET 4205 & ESET 4105	Sensors and Instrumentation and Sensors and Instrumentation La	
ESET 4206 & ESET 4106	Embedded & Connected Smart Dev and Embedded & Connected Smart Dev	
ESET 4207 & ESET 4107	Electronic Design Smart Card and Electronic Design Smart Card	
ESET 4208 & ESET 4108	Unmanned Mobile Systems Archit and Unmanned Mobile Sys Architectu	
Subtotal:		10
<b>Total Credits</b>		<b>120</b>

All students must complete the University's Core Curriculum (<https://catalog.tamusa.edu/undergraduate/academic-policies-procedures/core-curriculum/>) and the specific requirements of the major. In some cases, a course that is required for a major may also be counted towards the Core Curriculum.

## Plan of Study

*This suggested plan of study is intended to be used as a guide in conjunction with official degree requirements outlined in the catalog. While this plan demonstrates a course of study that covers eight semesters, each student's academic path is unique and your timeline may look different. Students should regularly consult with academic advisors as they plan their course schedules as course offerings may vary.*

Course	Title	Credits
<b>First Year</b>		
<b>First Semester</b>		
UNIV 1301	First Year Seminar	3
CHEM 1111	General Chemistry Lab I	1
CHEM 1311	General Chemistry I	3
ENGL 1301	Composition I	3
ENTC 1301	Principles of Engineering Tech	3
HIST 1301	US History to 1865	3
<b>Credits</b>		<b>16</b>
<b>Second Semester</b>		
Creative Arts		3
HIST 1302	US History from 1865	3
GOVT 2305	Federal Government	3
MATH 2313	Calculus I	3
ENGL 2311	Technical Writing	3
<b>Credits</b>		<b>15</b>
<b>Second Year</b>		
<b>First Semester</b>		
GOVT 2306	Texas Government	3
CSCI 1436	Programming Fundamentals I	4
MATH 2113	Calculus I Lab	1
MATH 2313	Calculus I	3
ESET 2101	AC and DC Circuits Lab	1
ESET 2301	AC and DC Circuits	3
<b>Credits</b>		<b>15</b>
<b>Second Semester</b>		
CSCI 1437	Programming Fundamentals II	4

MATH 2114	Calculus II Lab	1
MATH 2314	Calculus II	3
PHYS 2125	University Physics Lab I	1
PHYS 2325	University Physics I	3
ESET 2102	Analog Circuits Lab	1
ESET 2302	Analog Circuits	3
<b>Credits</b>		<b>16</b>

### Third Year

#### First Semester

PHYS 2126	University Physics Lab II	1
PHYS 2326	University Physics II	3
ESET 3101	Digital Electronics Lab	1
ESET 3301	Digital Electronics	3
ESET 3102	Found of Wireless Commun I	1
ESET 3302	Found of Wireless Commun I	3
SPCH 1315	Fund of Public Speaking	3
<b>Credits</b>		<b>15</b>

#### Second Semester

ECON 2302	Principles of Microeconomics	3
Language/Philosophy/Culture		3
ESET 3104	Programmable Logic Controllers	1
ESET 3304	Programmable Logic Controllers	3
ESET 3103	Found of Wireless Commun II	1
ESET 3303	Found of Wireless Commun II	3
<b>Credits</b>		<b>14</b>

### Fourth Year

#### First Semester

STEM 4101	Jaguar Tracks IV-Science/Math	1
ESET 3105	Near and Far Field Commu Lab	1
ESET 3205	Near and Far Field Communicati	2
ESET 4101	Control Systems Lab	1
ESET 4201	Control Systems	2
ESET 4102	Electronics Testing Lab	1
ESET 4202	Electronics Testing	2
ESET Elective		3
<b>Credits</b>		<b>13</b>

#### Second Semester

ESET 4304	Electronic Systems Capstone Pr	3
ESET Elective		3
ESET Elective		3
ESET Elective		3
ESET Elective		3
<b>Credits</b>		<b>15</b>

**Total Credits 119**