

# Electrical Engineering, B.S.

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A Bachelor of Science in Electrical Engineering provides a broad foundation in electrical engineering through combined classroom and laboratory work and prepares students for entering the profession of electrical engineering as well as further study at the graduate level. The core courses will provide students with a strong background in mathematics, physical science, and fundamentals of engineering.

## Matriculation Requirements

To be admitted to the BSEE program a student must complete the following courses with a minimum grade of C in these courses and grade point average of 2.5 or above. A student not meeting all of the admission requirements, may request in writing, a provisional admission status for a semester from the department. The provisional admission status must be approved by the electrical engineering program coordinator.

MATH 1210 Calculus I QL

MATH 1220 Calculus II

PHYS 2210 Physics for Scientists and Engineers I PP

PHYS 2215 Physics for Scientists and Engineers I Lab

PHYS 2220 Physics for Scientists and Engineers II PP

PHYS 2225 Physics for Scientists and Engineers II Lab

CS 1400 Fundamentals of Programming

ECE 1000 Introduction to Electrical and Computer Engineering

ECE 2700 Digital Design I

ECE 2705 Digital Design I Lab

ECE 2250 Circuit Theory

ECE 2255 Circuit Theory Lab

## Program Requirements

Code	Title	Credit Hours
<b>Total Credit Hours</b>		<b>125</b>
<b>General Education Requirements</b>		<b>38 Credits</b>
ENGL 1010 or ENGL 1005	Introduction to Academic Writing CC Literacies and Composition Across Contexts CC	3
ENGL 2010	Intermediate Academic Writing CC	3
MATH 1210	Calculus I QL	4
American Institutions:		3
Complete one of the following:		
HIST 2700 & HIST 2710	US History to 1877 AS and US History since 1877 AS (6)	
HIST 1700	American Civilization AS (3)	
HIST 1740	US Economic History AS (3)	
POLS 1000	American Heritage AS (3)	
POLS 1100	American National Government AS (3)	
Complete the following:		
PHIL 2050	Ethics and Values IH	3
HLTH 1100 or EXSC 1097	Personal Health and Wellness TE Fitness for Life TE	2
Distribution Courses:		
COMM 1020	Public Speaking HH	3

COMM 2110	Interpersonal Communication SS	3
Fine Arts Distribution		3
Biology Distribution		3
PHYS 2210	Physics for Scientists and Engineers I PP	4
CHEM 1210	Principles of Chemistry I PP	4
<b>Discipline Core Requirements</b>		<b>81</b>
		<b>Credits</b>
ECE 1000	Introduction to Electrical and Computer Engineering	3
CS 1400	Fundamentals of Programming	3
ECE 2250	Circuit Theory	3
ECE 2255	Circuit Theory Lab	1
ECE 2700	Digital Design I	3
ECE 2705	Digital Design I Lab	1
ECE 2750	Engineering Analysis	3
ECE 3250	Energy Conversion	3
ECE 3350	Control Systems	3
ECE 3450	Electromagnetics and Transmission Lines	3
ECE 3710	Applied Probability and Statistics for Engineers and Scientists	3
ECE 3730	Embedded Systems I	3
ECE 3740	Digital Design II	3
ECE 3760	Electronic Systems	3
ECE 3765	Electronic Systems Lab	1
ECE 3770	Signals and Systems	3
ECE 3780	Communication Systems and Circuits	3
ECE 3785	Communication Systems and Circuits Lab	1
ECE 4700	Computer Architecture for Engineering Applications	3
ECE 4730	Embedded Systems II	3
ECE 4750	Digital Signal Processing	3
ECE 4755	Digital Signal Processing Lab	1
ECE 4760	VLSI Design	3
ECE 4765	VLSI Design Laboratory	1
ECE 4900	Electrical and Computer Engineering Capstone I WE	3
ECE 4950	Electrical and Computer Engineering Capstone II WE	3
PHYS 2215	Physics for Scientists and Engineers I Lab	1
PHYS 2220	Physics for Scientists and Engineers II PP	4
PHYS 2225	Physics for Scientists and Engineers II Lab	1
CHEM 1215	Principles of Chemistry I Laboratory	1
MATH 1220	Calculus II	4
MATH 2210	Calculus III	4
<b>Elective Requirements</b>		<b>6</b>
		<b>Credits</b>
Complete a minimum of six credits from the following:		6
ECE 4780	Wireless and Mobile Communications (3)	
ECE 4250	Power Systems Engineering (3)	
ECE 4850	Machine Learning (3)	
ECE 4260	Smart Power Grids (3)	
ECE 481R	Electrical and Computer Engineering Internship (1-3)	

## Graduation Requirements

1. Completion of a minimum of 125-semester credits, with a minimum of 40 upper-division credits.
2. Overall grade point average of 2.5 or above, with a minimum grade of C in all discipline core and elective requirements.
3. Residency hours - minimum of 30 credit hours through course attendance at UVU. 10 of these hours must be within the last 45 hours earned. At least 12 of the credit hours earned in residence must be in approved CS + ECE courses.

4. All transfer credit must be approved in writing by UVU and the electrical engineering program coordinator.
5. No more than 80 semester hours and no more than 20 hours in CS and ECE courses of transfer credit.
6. No more than 6 semester hours may be earned through independent study.
7. Successful completion of at least one Global/Intercultural course.
8. Successful completion of at least two Writing Enriched (WE) courses.
9. Taking Fundamentals of Engineering (FE) (NCEES - Electrical and Computer Engineering) exam.

## Graduation Plan

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in Wolverine Track (<http://www.uvu.edu/wolverinetrack/>).

### First Year

Semester 1		Credit Hours
ENGL 1010 or ENGH 1005	Introduction to Academic Writing CC or Literacies and Composition Across Contexts CC	3
MATH 1210	Calculus I QL	4
CHEM 1210	Principles of Chemistry I PP	4
CHEM 1215	Principles of Chemistry I Laboratory	1
ECE 1000	Introduction to Electrical and Computer Engineering	3
<b>Credit Hours</b>		<b>15</b>

### Semester 2

ENGL 2010	Intermediate Academic Writing CC	3
MATH 1220	Calculus II	4
PHYS 2210	Physics for Scientists and Engineers I PP	4
PHYS 2215	Physics for Scientists and Engineers I Lab	1
CS 1400	Fundamentals of Programming	3
<b>Credit Hours</b>		<b>15</b>

### Second Year

#### Semester 3

Biology Distribution		3
MATH 2210	Calculus III	4
PHYS 2220	Physics for Scientists and Engineers II PP	4
PHYS 2225	Physics for Scientists and Engineers II Lab	1
ECE 2700	Digital Design I	3
ECE 2705	Digital Design I Lab	1
<b>Credit Hours</b>		<b>16</b>

#### Semester 4

American Institutions		3
HLTH 1100 or EXSC 1097	Personal Health and Wellness TE or Fitness for Life TE	2
ECE 2250	Circuit Theory	3
ECE 2255	Circuit Theory Lab	1
ECE 3710	Applied Probability and Statistics for Engineers and Scientists	3
ECE 2750	Engineering Analysis	3
<b>Credit Hours</b>		<b>15</b>

### Third Year

#### Semester 5

ECE 3730	Embedded Systems I	3
ECE 3740	Digital Design II	3
ECE 3760	Electronic Systems	3
ECE 3765	Electronic Systems Lab	1
ECE 3770	Signals and Systems	3
Fine Arts Distribution		3
<b>Credit Hours</b>		<b>16</b>

#### Semester 6

COMM 1020	Public Speaking HH	3
ECE 3250	Energy Conversion	3
ECE 3350	Control Systems	3
ECE 3780	Communication Systems and Circuits	3
ECE 3785	Communication Systems and Circuits Lab	1

ECE 4730	Embedded Systems II	3
<b>Credit Hours</b>		<b>16</b>
<b>Fourth Year</b>		
<b>Semester 7</b>		
COMM 2110	Interpersonal Communication SS	3
ECE 4760	VLSI Design	3
ECE 4765	VLSI Design Laboratory	1
ECE 4700	Computer Architecture for Engineering Applications	3
ECE 4900	Electrical and Computer Engineering Capstone I WE	3
EE Elective		3
<b>Credit Hours</b>		<b>16</b>
<b>Semester 8</b>		
PHIL 205G	Ethics and Values IH GI	3
ECE 3450	Electromagnetics and Transmission Lines	3
ECE 4750	Digital Signal Processing	3
ECE 4755	Digital Signal Processing Lab	1
ECE 4950	Electrical and Computer Engineering Capstone II WE	3
EE Elective		3
<b>Credit Hours</b>		<b>16</b>
<b>Total Credit Hours</b>		<b>125</b>

## Program Learning Outcomes

1. demonstrated their ability to perform electrical engineering analysis to solve problems and to communicate technical information effectively in an engineering or a professional team environment
2. advanced professionally by given more responsibilities; or have successfully completed a graduate level degree
3. continued their professional development through workshops; or earning professional licensure
4. served in their professional organizations and/or local communities.