

Electrical Engineering, BS

Program Description

The Bachelor of Science Degree in Electrical Engineering provides students with necessary skills to design, analyze, and build electrical, electronic, and electromechanical systems. Electrical engineering emphasizes electrical system design and control and extends into the areas of analog circuits, digital circuits, embedded systems, signal processing, electromagnetics, semiconductor devices, and electrical power. A student with a degree from this program will be well prepared to pursue either advanced degrees in engineering or computer science, or to pursue a technical career in fields such as electrical power systems, communications, or electronics design.

Professional Licensure/Certification (PLC) Requirements

The curriculum for programs at Utah Tech University leading to professional licensure are designed to prepare students for Utah licensure and certification requirements. Admission into programs for professions requiring licensure and certification does not guarantee that students will obtain a license or certificate. Licensure and certification requirements are set by agencies that are not controlled by or affiliated with the University, and licensure and certification requirements can change at any time.

Licensure boards in each state establish requirements for licensure and certification for their respective state. States vary by which professions are required to be licensed and how licensure functions, and such requirements may change at any time. The terms related to licensure and certification, among others, also vary by state as well.

Students and prospective students are strongly encouraged to contact the state licensure entity in the state where they intend to work to review all licensure and certification requirements imposed by the student's state(s) of choice. The University cannot provide verification of a student's ability to meet licensure or certification requirements unrelated to its educational programming. Some states require individuals to complete additional requirements that are unrelated to educational prerequisites. For more information, visit the State Authorization and Professional Licensure (<https://academics.utahtech.edu/state-authorization/>) web page and select the program, or speak to the director of the program.

Utah Tech University shall not be held liable if a student is unable to qualify for licensure or certification in any jurisdiction.

This disclosure is made pursuant to 34 CFR §668.43(a)(5)(v)(C).

Admission Requirements

The admissions process works as follows:

1. Student applies and is accepted to Utah Tech
 2. Student designates their major as Pre-Engineering (pursuing Associate of Pre-Engineering)
 3. Student passes the following courses with a C- or better:
 - MECH 1000
 - MECH 1200/05
 - MATH 1210
 - MATH 1220
 - CHEM 1210/1215
 - PHYS 2210/2215
 4. Student meets with the engineering advisor to ensure that required courses are complete and to make an academic plan
 5. Student's major is switched from Pre-Engineering to Electrical Engineering
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Program Curriculum

123.5 credits

Utah Tech General Education Requirements

All Utah Tech General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to Utah Tech's minimum General Education standards in American Institutions, English, and Mathematics.

General Education Core Requirements (<https://catalog.utahtech.edu/programs/generaleducation/#gerequirementstext>)

Code	Title	Hours
English		3-7
Mathematics		3-5
American Institutions		3-6
Life Sciences		3-10
Physical Sciences		3-5
Fine Arts		3
Literature/Humanities		3
Social & Behavioral Sciences		3
Exploration		3-5

Electrical Engineering Required Courses

Code	Title	Hours
CHEM 1210 & CHEM 1215	Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB)	5
ECE 2100	Semiconductor Devices	3
ECE 2700 & ECE 2705	Digital Circuits and Digital Circuits Lab	4
ECE 2280 & ECE 2285	Microelectronics and Microelectronics Lab	4
ECE 3300 & ECE 3305	Electromagnetics & Transmission Lines and Electromagnetics & Transmission Lines Lab	4
ECE 3500	Signals and Systems	3
ECE 3600 & ECE 3605	Electric Machinery and Electric Machinery Lab	4
ECE 3730 & ECE 3735	Embedded Systems I and Embedded Systems I Lab	4
ECE 4000	EE Product Design I	3
ECE 4010	EE Product Design II	3
ENGL 3010	Professional Writing and Business Ethics	3
MATH 1210	Calculus I (MA)	4
MATH 1220	Calculus II (MA)	4
MATH 2210	Multivariable Calculus (MA)	4
MATH 2250	Differential Equations and Linear Algebra	4
MATH 3400	Probability & Statistics	3
MECH 1000 & MECH 1005	Introduction to Design & Rapid Prototyping and Introduction to Design & Rapid Prototyping Lab	3
MECH 1200 & MECH 1205	Coding and Coding Lab	4
MECH 2210 & MECH 2215	Circuits and Circuits Lab	4
MECH 2250 & MECH 2255	Sensors & Actuators and Sensors & Actuators Lab	4
MECH 3200 & MECH 3205	Systems & Controls and Systems & Controls Lab	3.5

PHYS 2210 & PHYS 2215	Physics/Scientists Engineers I (PS) and Physics/Scientists Engineers I Lab (LAB)	5
PHYS 2220 & PHYS 2225	Physics/Scientists EngineersII and Physics/Scientists Engineers II Lab	5

Electrical Engineering Tech Electives

Code	Title	Hours
Complete 18 credits from the following:		
Any ECE 4xxx (excluding ECE 4000, 4005, 4010, 4015)		
Any MECH 4xxx (excluding MECH 4000, 4010)		
Any MTRN 4xxx (excluding MTRN 4000, 4010)		
NOTE: Only 3 credits may be from research and design practicum (ECE 4800R, MECH 4800R, MECH 4860R)		
NOTE: 9 credits must have an ECE prefix (excludes research and design practicum)		
NOTE: All other courses require approval from the Engineering Department		

Graduation Requirements

1. Complete 123.5 college-level credits (1000 and above)
2. Complete at least 40 upper-division credits (3000 and above)
3. Complete at least 30 upper-division credits at Utah Tech for institutional residency
4. Cumulative GPA 2.0 or higher
5. Grade C- or better in all Electrical Engineering Required Courses and Tech Elective Courses.
6. Pass the Fundamentals of Engineering (FE) Exam