Computer Engineering, BS

Program Description

The Bachelor of Science Degree in Computer Engineering teaches students the necessary skills to design, analyze, and build electromechanical systems. Computer engineering is a field that includes elements of computer science, electrical engineering, software development, and mechanical engineering. Computer engineering emphasizes hardware integration with software or electrical systems. Although similar to electrical engineering, computer engineering provides more teaching in the areas of programming, sensors, and actuators. A student with a degree from this program will be well prepared to pursue an advanced degree in engineering or computer science or to pursue a technical career in industrial and technological environments.

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:
    - CS 1400
    - CS 1410
    - MATH 1210
    - MATH 1220
    - PHYS 2210
    - PHYS 2215
1. Student meets with the engineering advisor to ensure that required courses are complete and to make an academic plan
2. Student's major is switched from Pre-Engineering to Computer Engineering

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

Computer Engineering Required Courses

Code	Title	Hours
ENGL 3010	Professional Writing and Business Ethics (Prerequisites: ENGL 1010 and ENGL 2010, or equivalent placement score)	3
MATH 1210	Calculus I (MA) (Prerequisites: MATH 1010 and MATH 1050 and MATH 1060 or MATH 1080, or equivalent placement score) [1]	4
MATH 1220	Calculus II (MA)	4
MATH 2250	Differential Equations and Linear Algebra	4
PHYS 2210 & PHYS 2215	Physics/Scientists Engineers I (PS) and Physics/Scientists Engineers I Lab [1]	5
PHYS 2220 & PHYS 2225	Physics/Scientists EngineersII and Physics/Scientists Engineers II Lab [1]	5
CS 1400	Fundamentals of Programming [1]	3
CS 1410	Object Oriented Programming [1]	3
CS 2100	Discrete Structures [1]	3
CS 2420	Introduction to Algorithms and Data Structures [1]	3
CS 2450	Software Engineering [1]	3
CS 2810	Computer Organization and Architecture [1]	3
CS 3410	Distributed Systems [1]	3
CS 3400	Operating Systems [1]	3
MECH 1000 & MECH 1005	Introduction to Design & Rapid Prototyping and Introduction to Design & Rapid Prototyping Lab [1]	3
MECH 1205	Coding Lab [1]	1
MECH 2250 & MECH 2255	Sensors & Actuators and Sensors & Actuators Lab [1]	4
MECH 3200 & MECH 3205	Systems & Controls and Systems & Controls Lab [1]	3.5
ECE 2210 & ECE 2215	Circuits I and Circuits I Lab [1]	4
ECE 2220 & ECE 2225	Circuits II and Circuits II Lab [1]	4
ECE 2700 & ECE 2705	Digital Circuits and Digital Circuits Lab [1]	4
ECE 3230 & ECE 3235	Circuits III and Circuits III Lab [1]	4

ECE 3730 & ECE 3735	Embedded Systems I and Embedded Systems I Lab [1]	4
ECE 3500	Signals and Systems [1]	3
ECE 4730 & ECE 4735	Embedded Systems II and Embedded Systems II Lab [1]	4
ECE 4005	CE Product Design I [1]	3
ECE 4015	CE Product Design II [1]	3

1. COURSE FEE REQUIRED. See course fee tab for details.

Computer Engineering Tech Elective Courses

Code	Title	Hours
Complete 12 credits from the following:		**12**
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 total may be from research, design practicum, internship, and co-op (MECH 4800R, ECE 4800R, MECH 4860R, ENGR 4890R, ENGR 4880R)		
NOTE: 3 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 a minimum of 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 higher in all Computer Engineering Required Courses and Tech Elective Courses.
6. Pass the Fundamentals of Engineering (FE) Exam