Pre-Engineering, APE

Program Description

The pre-engineering degrees prepare students to pursue a Bachelor of Science degree in an engineering field of their choice by requiring foundational courses common among engineering disciplines. Students interested in pursuing Mechanical Engineering, Computer Engineering, Electrical Engineering, Mechatronics, or Computer Science can earn the Associates of Pre-Engineering as a milestone to their chosen degree.

Program Curriculum

68 credit hours

Utah Tech General Education Requirements (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)

Code	Title	Hours
Complete at least 9 credits from the following:		
English		0-7
American Institutions		0-6
Life Sciences		0-3
Fine Arts		0-3
Literature/Humanities		0-3
Social & Behavioral Sciences		0-3

Math and Science Requirements

Code	Title	Hours
MATH 1210	Calculus I (MA)	3-4
or ENGR 2050	Fundamentals of Engineering Mathematics	
PHYS 2210 & PHYS 2215	Physics/Scientists Engineers I (PS) and Physics/Scientists Engineers I Lab (LAB)	5
or PHYS 2010 & PHYS 2015	College Physics I (PS) and College Physics I Lab (LAB)	

Programming Requirements

Code	Title	Hours
Complete one of the following sets of courses:		
MECH 1200 & MECH 1205	Coding and Coding Lab	4
CS 1400	Fundamentals of Programming	3

Pre-Engineering Elective Requirements

Code	Title	Hours
Complete at least 16 credits from the following:		
CHEM 1210 & CHEM 1215	Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB)	5
CHEM 1220 & CHEM 1225	Principles of Chemistry II and Principles of Chemistry II Lab	5
CS 1410	Object Oriented Programming	3
CS 2420	Introduction to Algorithms and Data Structures	3
CS 2450	Software Engineering	3

CS 2810	Computer Organization and Architecture	3
ECE 1200	MATLAB and Arduino	1
ECE 2100	Semiconductor Devices	3
ECE 2280 & ECE 2285	Microelectronics and Microelectronics Lab	4
ECE 2700 & ECE 2705	Digital Circuits and Digital Circuits Lab	4
MATH 1220	Calculus II (MA)	4
MATH 2200	Discrete Mathematics	3
MATH 2210	Multivariable Calculus (MA)	4
MATH 2250	Differential Equations and Linear Algebra	4
MATH 2270	Linear Algebra	3
MATH 2280	Ordinary Differential Equations	3
MECH 1000 & MECH 1005	Introduction to Design & Rapid Prototyping and Introduction to Design & Rapid Prototyping Lab	3
MECH 1100	Manufacturing Processes	3
MECH 1150	Prototyping Techniques	2.5
MECH 2010	Statics	3
MECH 2160	Materials Science	3
MECH 2030	Dynamics	3
MECH 2210 & MECH 2215	Circuits and Circuits Lab	4
MECH 2250 & MECH 2255	Sensors & Actuators and Sensors & Actuators Lab	4
MTRN 2200 & MTRN 2205	Industrial Wiring for Automated Systems and Industrial Wiring for Automated Systems Lab	3
MTRN 2300 & MTRN 2305	Introduction to Programmable Logic Controllers and Introduction to Programmable Logic Controllers Lab	4
MTRN 2350 & MTRN 2355	Advanced PLC Programming and Applications and Advanced PLC Programming and Applications Lab	4
MTRN 2400	Mechanical Components	4
PHYS 2220 & PHYS 2225	Physics/Scientists EngineersII and Physics/Scientists Engineers II Lab	5
or PHYS 2020 & PHYS 2025	College Physics II and College Physics II Lab	

Graduation Requirements

1. Complete a minimum of 68 college-level credits (1000 and above).
2. Complete at least 20 semester hours of credits at Utah Tech for institutional residency.
3. Cumulative GPA 2.0 or higher.
4. Grade C- or higher in all Math and Science Requirements, Programming Requirements, and Pre-Engineering Elective Requirements.