COMPUTER ENGINEERING TECHNOLOGY MAJOR (B.S.)

https://manchester.unh.edu/program/bs/computer-engineering-technology-major

Description

Computer Engineering Technology (CET) is the fusion of hardware and software engineering, focusing on the design, development and testing of computer firmware. Unlike traditional electrical engineering, CET emphasizes both programming and digital hardware, preparing graduates to work with microcontrollers, networking and system architecture. This discipline is essential in industries like telecommunications, automation and cybersecurity, where professionals bridge the gap between electronics and computing solutions.

Requirements

Degree Requirements

Minimum Credit Requirement: 128 credits

Minimum Residency Requirement: 32 credits must be taken at UNH

Minimum GPA: 2.0 required for conferral*

Core Curriculum Required: Discovery & Writing Program Requirements

Foreign Language Requirement: No

All Major, Option and Elective Requirements as indicated.
**Major GPA requirements as indicated.*

Major Requirements

Courses required in the major must be completed with a minimum grade of C- and students must attain a minimum GPA in the major of 2.0.

Code	Title	Credits
Required Courses		
COMP 424	Applied Computing 1: Foundations of Programming	4
COMP 525	Data Structures Fundamentals	4
COMP 530	Machine and Network Architecture	4
COMP 550	Networking Concepts	4
COMP 560	Ethics and the Law in the Digital Age	4
COMP 625	Data Structures and Algorithms	4
COMP 720	Database Systems and Technologies	4
ECN 411/411W	Introduction to Macroeconomic Principles	4
or ECN 412/412W	Introduction to Microeconomic Principles	
ET 421	Digital Electronics I	4
ET 660	FPGA Design with HDL	4
ET 431	Circuit Analysis I	4
ET 432	Circuit Analysis II	4
ET 522	Digital Electronics II	4
ET 541	Electronic Devices	4
ET 590	Embedded Microcontrollers	4
ET 625	Technical Communications	4
ET 671	Digital Systems	4
ET 680	Communications and Fields	4
ET 788	Introduction to Digital Signal Processing	4
ET 791	Electrical Engineering Technology Project	8
MATH 425	Calculus I	4
MATH 426	Calculus II	4
PHYS 407	General Physics I	4
Elective		
COMP Elective: Select any COMP course 500-level (or higher) not already required.		4
Total Credits		**100**

Degree Plan

Sample Degree Plan

This sample degree plan serves as a general guide; students collaborate with their academic advisor to develop a personalized degree plan to meet their academic goals and program requirements.

First Year		
Fall		**Credits**
MATH 418	Analysis and Applications of Functions	4
ENGL 401	First-Year Writing	4
ET 431	Circuit Analysis I	4
COMP 424	Applied Computing 1: Foundations of Programming	4
	Credits	**16**
Spring		
MATH 425	Calculus I	4
ET 421	Digital Electronics I	4
ET 432	Circuit Analysis II	4
COMP 550	Networking Concepts	4
	Credits	**16**
Second Year		
Fall		
MATH 426	Calculus II	4
ET 522	Digital Electronics II	4
ET 541	Electronic Devices	4
COMP 525	Data Structures Fundamentals	4
	Credits	**16**
Spring		
ET 590	Embedded Microcontrollers	4
PHYS 407	General Physics I	4
COMP 530	Machine and Network Architecture	4
Discovery Course		4
	Credits	**16**
Third Year		
Fall		
ET 680	Communications and Fields	4
ET 671	Digital Systems	4
COMP Elective		4
Discovery Course		4
	Credits	**16**
Spring		
ET 625	Technical Communications	4
ET 660	FPGA Design with HDL	4
COMP 625	Data Structures and Algorithms	4
Discovery Course		4
	Credits	**16**

Fourth Year		
Fall		
COMP 560	Ethics and the Law in the Digital Age	4
COMP 720	Database Systems and Technologies	4
ET 791	Electrical Engineering Technology Project	4
Discovery Course		4
	Credits	**16**
Spring		
ECON 401	Principles of Economics (Macro)	4
ET 791	Electrical Engineering Technology Project	4
ET 788	Introduction to Digital Signal Processing	4
Discovery Course		4
	Credits	**16**
	Total Credits	**128**

Student Learning Outcomes

Program Learning Outcomes
General Engineering Technology

- Problem Solving: an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline.
- System Design: an ability to design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline.
- Communication Skills: an ability to apply written, oral, and graphical communication in broadly-defined technical and non-technical environments; and an ability to identify and use appropriate technical literature.
- Testing, Measurements, and Interpretation: an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes.
- Teamwork: an ability to function effectively as a member as well as a leader on technical teams.

Computer Engineering Technology

- Application of electric circuits, computer programming, associated software applications, analog and digital electronics, microcontrollers, operating systems, local area networks, and engineering standards to the building, testing, operation, and maintenance of computer systems and associated software systems.
- Application of natural sciences and mathematics at or above the level of algebra and trigonometry to the building, testing, operation, and maintenance of computer systems and associated software systems.
- Analysis, design, and implementation of computer system hardware and software.
- Application of project management techniques to computer systems.
- Utilization of statistics/probability, transform methods, discrete mathematics, or applied differential equations in support of computer systems and networks.