

MAJOR IN COMPUTER ENGINEERING, ROBOTICS AND AUTOMATION CONCENTRATION

The Robotics and Automation concentration within the Computer Engineering major equips students with foundational knowledge in embedded computing, digital system design, and communication architectures, while offering specialized coursework in robotics, autonomy, and intelligent control.

This concentration prepares students to design and implement robotic and automated systems by integrating computing fundamentals with sensing, actuation, embedded AI, and control algorithms. Students gain extensive hands-on experience through programming, edge-AI deployment, and system-integration projects involving automation and cyber-physical systems.

Graduates will be well prepared for careers in autonomous systems, industrial automation, robotics software and controls, aerospace and defense systems, and emerging sectors at the intersection of computing, sensing, and autonomy.

Learning Objectives

Upon successful completion, students will be able to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. Communicate effectively with a range of audiences.
4. Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. Function effectively on a team whose members together provide leadership, create a collaborative environment, establish goals, plan tasks, and meet objectives.
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.