MAJOR IN ELECTRICAL ENGINEERING, ROBOTICS AND AUTOMATION CONCENTRATION

The Robotics and Automation concentration within the Electrical Engineering major provides students with a foundation in circuits, sensing, signal processing, and control systems, while offering specialized coursework in robotics, electromechanical actuation, and automation technologies.

This concentration prepares students to architect and control robotic and automated systems by integrating electrical engineering fundamentals with actuators, power electronics, sensor interfaces, embedded control, and feedback systems. Students gain extensive hands-on experience through design, control implementation, and project-based work involving robotic and automated systems.

Graduates will be ready for careers in industrial robotics, smart manufacturing, autonomous systems, aerospace and defense automation, and related fields requiring deep expertise in control, sensing, and intelligent electromechanical integration.

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.