

MAJOR IN MECHANICAL ENGINEERING, ROBOTICS AND AUTOMATION CONCENTRATION

The Robotics and Automation concentration offers mechanical engineering students an opportunity to specialize in the design, modeling, and implementation of intelligent electromechanical systems. This concentration integrates mechanical engineering fundamentals with cutting-edge technologies, including sensors, actuators, embedded systems, and control systems. Students gain hands-on experience through laboratory courses, simulation-based analysis, and design projects focused on robotic platforms and automated systems.

Graduates of this concentration will develop a specialized focus in robotics, mechatronics, and automation, preparing them for careers in high-demand industries such as manufacturing automation, aerospace systems, autonomous vehicles, and industrial robotics. This concentration equips students with the skills needed to thrive in emerging fields driven by advancements in intelligent system design and 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.