MECHATRONICS ENGINEERING

Overview

Mechatronics engineering is a new multidisciplinary field that combines mechanical engineering, electrical engineering, control systems and computer science to create intelligent systems and products. Mechatronics Engineering is the key to the integration of automation and data exchange in manufacturing. It also enables the creation of sustainable and environmentally friendly manufacturing processes. The field is critical to the development of high-technology automated systems that allow industry to increase productivity and quality.

Mechatronic systems and devices can be found in agriculture, hospitals, buildings, homes, automobiles, defense, space and security systems, manufacturing plants, the entertainment industry, and aids for the elderly and disabled.

Students will have the opportunity to explore the Internet of Things, robots, telecommunications, and the use of artificial intelligence to improve the quality of products and processes. They will make use of sensors and networking to promote efficient human-machine communication.

Program Educational Objectives (PEOs) are broad statements that describe what alumni do within a few years following graduation. The Mechatronics Engineering Department is committed to graduating engineers who within a few years of their graduation are expected to:

- Apply engineering science to analyze and design robotic and automation systems.
- 2. Pursue engineering careers or advanced studies in mechatronics engineering or related technical fields.
- 3. Employ effective communication skills as team members or team leaders in an ethical and professional manner with a sense of social and global responsibility.
- Engage in lifelong learning by contributing to their chosen field, actively participating in professional societies and broadening their professional knowledge with formal and/or informal continuing education.
- 5. Encourage diversity to foster creativity, innovation and productive collaboration to make sound decisions.

The Mechatronics Engineering students will graduate from the program with the ability to perform and execute the following student outcomes:

- 1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- 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
- 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
- To function effectively on a team whose members together provide leadership, create a collaborative and inclusive 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

Why Fairfield Mechatronics Engineering?

- Small class sizes with student centered focus on teaching and learning
- · Students automatically qualify for a math minor
- · Designed as an ABET Accredited program
- Students engage in applied research and experiential learning with faculty or through internships
- · Curriculum support and mentoring outside the classroom
- A broad range of courses with well-equipped and accessible laboratories
- · Hands-on, real-world, interdisciplinary senior design projects
- Students participate in clubs, innovative symposia, business plan competitions
- Community-engaged-learning courses to foster a lifelong commitment to service to humanity

Programs

Mechatronics Engineering Major