

ELEC-480

↗ 380?

Course Description:

This course is a continuation of the second semester Fundamentals of Robotics. It proceeds into robot applications, work cells, interfacing and programming techniques. Real applications will be studied through student projects, which will be constructed and tested in the lab. Emphasis is given to the students, creativity and ingenuity. Areas of special interest are; safety, part manipulation, programming, vision, AI and environmental/part sensing systems. Visits to area manufacturers and places of interest may also be a part of this course.

Course Objectives:

Through reading, lectures, lab projects and problem solving, students will be able to:

1. Identify and analyze potential robot applications and select the proper type of robot to accomplish the desired task.
2. Install a robot/s and its associated hardware in selected applications.
3. Program the robot for a particular operation or set of operations using teach modes, BASIC and machine language.
4. Maintain and up-grade the workstation as technology, improvements and needs require.
5. Construct and program robots and their peripherals to automate robotic applications from prescribed labs and from experience.
6. Study the operation and application of robotic work cells as applied to industry.

TEACHING PROCEDURES: Lectures, discussion, papers, oral presentations, collaborative learning.

Prerequisites: ELEC-210, ELEC-260, ELEC-241, ELEC-280 (New #), MATH-132, WRIT-202 or Permission of Dept Chair.

Justification:

At our Nov 8, 2005 advisory board meeting, we discussed adding more robotics and automation courses to the curriculum to enhance and improve the overall employability of our graduates. In addition we wanted to recruit students directly into a robotics course in the spring semester. To this end we have opened up the Fundamentals of Robotics (ELEC-2XX) course to have only one pre-req. Now we need to move this course to a 300 level fall semester course (ELEC-380). Next we have added an advanced automation course explained in the subsequent curriculum change application form.