COURSE INFORMATION FORM

DISCIPLINE: Industrial Technology
COURSE TITLE: Industrial Robotics
CR.HR. 4 LECT HR. 2 LAB HR. 4 CLIN/INTERN HR. _______ CLOCK HR. _______

CATALOG DESCRIPTION

This course is an introduction to various types of robot anatomy. Topics include drive systems, control systems and components, motion analysis, end-effectors, sensors and machine vision. The course also covers robot classifications, geometry and path control techniques, end-of-arm tooling, gripper selection system intelligence and compliance, programming, safety and safeguarding considerations and operator training, acceptance and problems. Laboratory experiments focus on interfacing lab robots to I/O devices using industrial grade PLCs of the major manufacturers and programming the lab robots to perform basic tasks.

PREREQUISITES

INTE 271 or concurrent enrollment with a C grade or higher

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)

Upon completion of this course, the student will be able to:

1. Define common robot terminology.
2. Identify components of a robot system.
3. Demonstrate how to safely power up and jog the robot.
4. Demonstrate recovery from common program and robot faults.
5. Execute safe production operations.
6. Create, modify and execute a material handling program.
7. Create and execute macros.
8. Monitor, force and simulate input and output signals.
9. Demonstrate a backup and restore of programs and files.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

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<tr>
<th>Outcomes</th>
<th>ESO</th>
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PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes may be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. Written examinations (1 – 9)
2. Practical demonstrations (3 – 9)
3. Skills test (3-9)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Robot safety
II. Robot systems
III. Teaching pendant
IV. Power up
   A. Jogging
   B. Initial setup
V. Error and fault recovery
VI. Motion instructions
VII. Programs
   A. Copying
   B. Editing
   C. Branching
VIII. Instructions
   A. Position register
   B. Miscellaneous
IX. Input and Output
X. Macros
XI. Program adjust
XII. Program and file manipulation
XIII. Mastering