Washtenaw Community College Comprehensive Report

MEC 224 Robotics IV
Effective Term: Fall 2014

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: Industrial Technology
Discipline: Mechatronics
Course Number: 224
Org Number: 14430
Full Course Title: Robotics IV
Transcript Title: Robotics IV
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: New Course
Change Information:
Consultation with all departments affected by this course is required.
Course discipline code & number
Outcomes/Assessment
Rationale: Conditionally-approved course seeking full approval.
Proposed Start Semester: Fall 2014
Course Description: In this course, students will learn about advanced programming of robots and programmable controllers in an integrated work cell. Problems related to maintenance and trouble-shooting constitute a major segment of the course. A group project involving the design and construction of a work cell that simulates some industrial process is an enjoyable conclusion to this course. This course contains materials previously taught in ROB 224.

Course Credit Hours

Variable hours: No
Credits: 4
Lecture Hours: Instructor: 30 **Student:** 30
Lab: Instructor: 60 **Student:** 60
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 90 **Student:** 90
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

Prerequisite
ROB 223 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
   Assessment 1
   Assessment Tool: Capstone project
   Assessment Date: Winter 2015
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All sections
   Number students to be assessed: All students
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 75% of the students will score 75% or higher.
   Who will score and analyze the data: Departmental faculty

Course Objectives

1. Correctly use at least one industrial robot.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
2. Perform effective and efficient robot programming.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
3. Document robot programming.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
4. Safely and correctly perform electrical wiring.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
5. Document electrical wiring.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
6. Perform effective and efficient PLC programming.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
7. Document PLC programming.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
8. Interface robot with surrounding equipment.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
9. Demonstrate effective use of teamwork.
   Matched Outcomes
   1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
10. Demonstrate creativity in design.
    Matched Outcomes
    1. Design and construct a work cell (robotic device and process) in accordance with

industry and safety standards.

11. Demonstrate effective troubleshooting.
    Matched Outcomes
    1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.
12. Recognize and apply safety standards.
    Matched Outcomes
    1. Design and construct a work cell (robotic device and process) in accordance with industry and safety standards.

New Resources for Course

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Thomas Penird	*Faculty Preparer*	*Mar 21, 2014*
Department Chair/Area Director:		
Thomas Penird	*Recommend Approval*	*Mar 21, 2014*
Dean:		
Marilyn Donham	*Recommend Approval*	*Apr 03, 2014*
Vice President for Instruction:		
Bill Abernethy	*Approve*	*Apr 25, 2014*