

Washtenaw Community College Comprehensive Report

ROB 101 Robotics I - I Effective Term: Winter 2017

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Industrial Technology

Discipline: Robotics

Course Number: 101

Org Number: 14430

Full Course Title: Robotics I - I

Transcript Title: Robotics I - I

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog , Time Schedule , Web Page

Reason for Submission: Three Year Review / Assessment Report

Change Information:

Consultation with all departments affected by this course is required.

Course description

Outcomes/Assessment

Rationale: Periodic review.

Proposed Start Semester: Winter 2017

Course Description: This is the first course of the robotics series. It is a beginning level course where students are exposed to various aspects of industrial robots and automated manufacturing. Studies include an introduction to hands-on programming using industrial robotics. This course contains material previously taught in ROB 121. ROB 101 is generally offered in the first 7 1/2 week session.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 30 Student: 30

Lab: Instructor: 15 Student: 15

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 45 Student: 45

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

General Education

Degree Attributes

Statewide articulation approved

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify proper applications for automation.

Assessment 1

Assessment Tool: departmental exam

Assessment Date: Fall 2016

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: answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

2. Identify suitable methods of production.

Assessment 1

Assessment Tool: departmental exam

Assessment Date: Fall 2016

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: answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

3. Recognize limitations and capabilities of industrial robots.

Assessment 1

Assessment Tool: departmental exam

Assessment Date: Fall 2016

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: answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

4. Recognize the key historical events and timeframe in the development of robotics.

Assessment 1

Assessment Tool: departmental exam

Assessment Date: Fall 2016

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: answer key

Standard of success to be used for this assessment: 70% of the students will score 70% or higher.

Who will score and analyze the data: Departmental faculty

5. Write entry level robot programs.

Assessment 1

Assessment Tool: Student written robot program.

Assessment Date: Fall 2016

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections.

Number students to be assessed: All students enrolled.

How the assessment will be scored: Department developed rubric.

Standard of success to be used for this assessment: 70% of the students will score a 3 of 5 or higher on all five areas.

Who will score and analyze the data: Department faculty.

Course Objectives

1. Define an industrial robot.
2. Name at least three important inventions that led to the development of the robot and include the year of the invention.
3. Describe the difference between hard automation and flexible automation.
4. Identify rectangular, cylindrical, spherical, articulated and SCARA robots.
5. Describe why the popularity of the robot was delayed until 20 years after its first installation.
6. Name five applications for industrial robots.
7. Describe the difference between open loop and closed loop control systems.
8. Describe two major differences between pneumatic and hydraulic systems.
9. Identify the capabilities and advantages of industrial robots.
10. Recognize the disadvantages of industrial robots.
11. Program basic robot actions.

New Resources for Course

Course Textbooks/Resources

Textbooks

Manuals

Periodicals
Software

Equipment/Facilities
Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Gary Schultz</i>	<i>Faculty Preparer</i>	<i>Apr 20, 2016</i>
Department Chair/Area Director: <i>Thomas Penird</i>	<i>Recommend Approval</i>	<i>Apr 28, 2016</i>
Dean: <i>Brandon Tucker</i>	<i>Recommend Approval</i>	<i>May 19, 2016</i>
Curriculum Committee Chair: <i>David Wooten</i>	<i>Recommend Approval</i>	<i>Sep 19, 2016</i>
Assessment Committee Chair: <i>Michelle Garey</i>	<i>Recommend Approval</i>	<i>Sep 22, 2016</i>
Vice President for Instruction: <i>Bill Abernethy</i>	<i>Approve</i>	<i>Oct 04, 2016</i>