

Washtenaw Community College Comprehensive Report

MEC 201 Mechanisms Effective Term: Winter 2022

Course Cover

College: Advanced Technologies and Public Service Careers
Division: Advanced Technologies and Public Service Careers
Department: Advanced Manufacturing
Discipline: Mechatronics
Course Number: 201
Org Number: 14400
Full Course Title: Mechanisms
Transcript Title: Mechanisms
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:

Course description

Pre-requisite, co-requisite, or enrollment restrictions

Outcomes/Assessment

Objectives/Evaluation

Rationale: Three year update based on assessment report results and new faculty mentoring the course. Removed prerequisite for MEC101. Blueprint reading skills are not being included in current course and allows this foundation course to be taken earlier in the student's program. Revised objectives to match available equipment.

Proposed Start Semester: Fall 2021

Course Description: In this course, students will use a blend of hands-on experiences and short research assignments to gain an understanding of electro-mechanical theory and principles. These principles are used for the design and maintenance of industrial machines and products. Students will also examine fundamental forces and motion within mechanisms using a variety of math concepts. This course is the foundation for the mechatronics program.

Course Credit Hours

Variable hours: No

Credits: 2

Lecture Hours: Instructor: 0 Student: 0

Lab: Instructor: 60 Student: 60

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 60 Student: 60

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

Level 3

Requisites

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Design and construct machine systems utilizing the six classic machines.

Assessment 1

Assessment Tool: Outcome-related written test questions

Assessment Date: Fall 2022

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: 75% of students will achieve 70% or higher

Who will score and analyze the data: Departmental faculty

Assessment 2

Assessment Tool: Lab project

Assessment Date: Fall 2022

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 students will score 70% or higher

Who will score and analyze the data: Departmental faculty

2. Analyze mechanical advantage and/or ratios of given mechanisms using math concepts learned in this course.

Assessment 1

Assessment Tool: Outcome-related written test questions

Assessment Date: Fall 2022

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 students will achieve 70% or higher.

Who will score and analyze the data: Departmental faculty

3. Design a suitable product for a specific force/motion application.

Assessment 1

Assessment Tool: Capstone project

Assessment Date: Fall 2022

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 students will achieve 70% or higher

Who will score and analyze the data: Departmental faculty

Course Objectives

1. Construct models of simple machines.
2. Measure performance of simple machines.
3. Calculate gear ratio for multiple gear drive train.
4. Predict speed ratio for V-belt and grooved pulley drive system.
5. Identify components of chain drive systems.
6. Design a mechanism to produce a specified motion.
7. Identify the component simple machines that are in a complex product.
8. Estimate the mechanical advantage provided by a system of pulleys.
9. Design a mechanism to perform an inspection task.
10. Assemble components into a machine and evaluate its performance.
11. Calculate input and output speeds of drive systems.

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>Allan Coleman</i>	<i>Faculty Preparer</i>	<i>Aug 17, 2021</i>
Department Chair/Area Director: <i>Allan Coleman</i>	<i>Recommend Approval</i>	<i>Aug 17, 2021</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Aug 22, 2021</i>
Curriculum Committee Chair: <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Nov 05, 2021</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Nov 10, 2021</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Nov 12, 2021</i>