

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

Faculty members are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPT. MECH COURSE NUMBER: 2125

NUMBER OF CREDITS: 3 Lecture: 1 Lab: 2

Course Title:

Motion Control

Catalog Description:

Examines components in a motion control system, including servo systems, motors, feedback devices, controllers, and the software used to control precise motion in industrial automation.

FULFILLS MN TRANSFER CURRICULUM AREA(S)

Goal 1: Communication: ____ by meeting the following competencies:

Goal 2: Critical Thinking: ____ by meeting the following competencies:

Goal 3: Natural Sciences: ____ by meeting the following competencies:

Goal 4: Mathematics/Logical Reasoning: ____ by meeting the following competencies:

Goal 5: History and the Social and Behavioral Sciences: ____ by meeting the following competencies:

Goal 6: The Humanities and Fine Arts: ____ by meeting the following competencies:

Goal 7: Human Diversity: ____ by meeting the following competencies:

Goal 8: Global Perspective: ____ by meeting the following competencies:

Goal 9: Ethical and Civic Responsibility: ____ by meeting the following competencies:

Goal 10: People and the Environment: ____ by meeting the following competencies:

Prerequisites or Necessary Entry Skills/Knowledge:

MECH1125, MECH1135, MECH2136

Topics to be Covered

1. AC and DC motors.
2. Motor Controls.
3. Motion control theory.
4. Open/closed loop systems.
5. Actuators.
6. Feedback devices.
7. Drive and Controller.
8. Programming.
9. Multi-axis coordinate systems.
10. System setup and implementation.
11. Input/Output modules and associated field devices.
12. Troubleshooting principles and testing for hardware and software.

Student Learning Outcomes

1. Identify and control potential safety hazards and implement safe working practices.
2. Identify AC and DC motor construction and function.
3. Design and wire motor control circuits.
4. Identify various controller, drive, actuator, feedback, and interface hardware components, communication interfaces, and associated Input/Output field devices.
5. Demonstrate an understanding of the function and operation of motion controlled systems.
6. Demonstrate skills in designing, wiring, troubleshooting, and operation of motion control systems.

Is this course part of a transfer pathway: Yes No

Revised Date: 05/2020