MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

DEPT. MECH **COURSE NUMBER: 2110**

NUMBER OF CREDITS: 3 **Lecture: 3 Lab: 0 OJT: 0**

Course Title:
Circuit Design and Control Theory

Catalog Description:
Circuit Design and Control Theory provides student instruction in design and function of hydrostatic drives, mobile valves, pump controls, and power steering.

Prerequisites or Necessary Entry Skills/Knowledge:
MECH 1103

FULFILLS MN TRANSFER CURRICULUM AREA(S) ***(Leave blank if not applicable)***

☐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:

Topics to be Covered
Power transmission types and purpose
Open loop and closed loop hydraulic circuits
Pump controls and applications
Design and selection of hydrostatic system components.
Mobile and industrial valve identification and function.
Mobile valve components, circuits and applications.
Power steering components and applications.
Open and closed center circuit comparisons.
Hydraulic servo controls and components.

Pressure compensation.

Student Learning Outcomes
Identify, calculate, and select components used to operate hydrostatic drives.
Determine proper function of mobile and industrial hydraulic valves.
Determine proper function of pump and system controls.
Identify components and operation of power steering systems.
Identify power transmission types and purpose.
Describe advantages/disadvantages of open or closed loop control.
Describe manual and electronic servo systems.
Draw symbols and schematics for mobile hydraulic applications.

Is this course part of a transfer pathway: Yes ☐ No ☒
***If yes, please list the competencies below**

Revised Date: 2/2/2022