

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. MECH

COURSE NUMBER: 1105

NUMBER OF CREDITS: 1-3

Lecture: 0 Lab: 1-3 OJT: 0

Course Title:

Hydraulics Lab

Catalog Description:

Hydraulics lab examines basic equipment and fundamentals of hydraulic valves of fluid power. Focus will also cover various flow controls, pumps and motors. Students will tear down, plumb and operate the various components.

Prerequisites or Necessary Entry Skills/Knowledge:

None.

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

Shop safety precautions, practice and emergency responses.

Flow and pressure and pressure drop testing.

Pump, actuators, and control valve teardown and test.

Hydraulic pump/ motor efficiency test.

Design and test hydraulic circuits using various actuators, flow control valves, pressure control valves and directional control valves.

Identify various fittings.

Calculate and measure hydraulic circuit variables.

Student Learning Outcomes

Identify and control potential safety hazards and implement safe working practices.

Disassemble directional control valves, pressure control valves, flow control valves, pumps, motors, actuators and perform functional tests.

Design and assemble circuits using sequence, unloading, counterbalance, brake, and pressure reducing valves.

Identify and apply various methods of flow, pressure, and directional control.

Identify various fittings.

Connect, operate, and measure hydraulic circuits with various components.

Troubleshoot basic hydraulic systems.

Is this course part of a transfer pathway: Yes No

***If yes, please list the competencies below**

Revised Date: 1/26/2022