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: 1105

NUMBER OF CREDITS: 1-3, Variable & Repeatable in the same term
Lecture:       Lab: 1-3

Course Title:
Hydraulic Lab

Catalog Description:
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.

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:
None
### Topics to be Covered

2. Flow and pressure and pressure drop testing.
5. Design and test hydraulic circuits using various actuators, flow control valves, pressure control valves and directional control valves.
6. Identify various fittings.
7. Calculate and measure hydraulic circuit variables.

### Student Learning Outcomes

1. Identify and control potential safety hazards and implement safe working practices.
2. Disassemble directional control valves, pressure control valves, flow control valves, pumps, motors, actuators and perform functional tests.
3. Design and assemble circuits using sequence, unloading, counterbalance, brake, and pressure reducing valves.
4. Identify and apply various methods of flow, pressure, and directional control.
5. Identify various fittings.
6. Connect, operate, and measure hydraulic circuits with various components.
7. Troubleshoot basic hydraulic systems.

### Is this course part of a transfer pathway: Yes ☐ No ☒

Revised Date: 01/2021