

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. MECH

COURSE NUMBER: 2105

NUMBER OF CREDITS: 4

Lecture: 2 Lab: 2 OJT: 0

Course Title:

Advanced Fluid Power Systems I

Catalog Description:

Advanced Fluid Power Systems I provides students the opportunity to design, plumb, and operate various advanced hydraulic, pneumatic, and electrical control circuits.

Prerequisites or Necessary Entry Skills/Knowledge:

Successful completion of year one in the Mechatronics diploma or A.A.S. degree program or equivalent work experience.

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

Component specifications, descriptions and diagrams

Design and operate fluid power circuits per specifications.

Fluid power component testing.

Hydraulic circuit applications.

Pneumatic circuit applications.

Electro-pneumatic circuits.

Hydraulic circuit controls.

Pneumatic circuit controls

Open loop hydraulic pumps.

Troubleshoot fluid power systems.

Student Learning Outcomes

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

Design and test the functions of specified hydraulic and pneumatic components.

Determine proper function of components in a fluid power system.

Research fitting and product specifications, model numbers, and drawings.

Design and draw fluid power circuits per specifications.

Design and test various pump and motor circuits.

Design and operate electro-pneumatic circuits.

Design and operate specified pneumatic circuits using appropriate actuators, pressure control, directional control, and flow control components

Perform performance and reliability testing on fluid power conductors and components.

Troubleshoot fluid power systems

Is this course part of a transfer pathway: Yes No

*If yes, please list the competencies below

Revised Date: 1/26/2022