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: 2105

NUMBER OF CREDITS: 4  Lecture: 2  Lab: 2

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<th>Course Title:</th>
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<td>Advanced Fluid Power Systems I</td>
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<th>Catalog Description:</th>
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<td>Provides students the opportunity to design, plumb, and operate various advanced hydraulic, pneumatic, and electrical control circuits.</td>
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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:

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<th>Prerequisites or Necessary Entry Skills/Knowledge:</th>
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<td>Successful completion year one of the Mechatronics diploma or A.A.S. degree program or equivalent work experience.</td>
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**Topics to be Covered**
1. Component specifications, descriptions and diagrams.
2. Design and operate fluid power circuits per specifications.
3. Fluid power component testing.
4. Hydraulic circuit applications.
5. Pneumatic circuit applications.
8. Pneumatic circuit controls.
9. Open loop hydraulic pumps.
10. Troubleshoot fluid power systems.

**Student Learning Outcomes**
1. Identify and control potential safety hazards and implement safe working practices.
2. Design and test the functions of specified hydraulic and pneumatic components.
3. Determine proper function of components in a fluid power system.
4. Research fitting and product specifications, model numbers, and drawings.
5. Design and draw fluid power circuits per specifications.
6. Design and test various pump and motor circuits.
7. Design and operate electro-pneumatic circuits.
8. Design and operate specified pneumatic circuits using appropriate actuators, pressure control, directional control, and flow control components.
9. Perform performance and reliability testing on fluid power conductors and components.
10. Troubleshoot fluid power systems.

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

Revised Date: 05/2020