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## SECTION HEADING

### MECH 2105: Advanced Fluid Power Systems I

#### Description

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

#### Credits

4

#### Prerequisite

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

#### Corequisite

None

#### 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.
6. Electro-pneumatic circuits.
7. Hydraulic circuit controls.
8. Pneumatic circuit controls
9. Open loop hydraulic pumps.
10. Troubleshoot fluid power systems.

#### 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

#### Credit Details

Lecture: 2

Lab: 2

OJT: 0

MnTC Goal Area(s): None