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## SECTION HEADING

### MECH 2126: Systems Analysis

#### Description

Systems Analysis provides students with the knowledge of how fluid power components interact with each other in systems and determine causes of malfunction.

#### 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. Pump unloading systems.
2. Load locking circuits.
3. Filtration.
4. Component failure analysis.
5. Open/closed center circuits.
6. Circuit safety measures.
7. Circuits with open and closed loop pumps
8. Counterbalance, sequencing, mobile vehicles and braking circuits.
9. Internal/external drain and pilot for control valves.
10. Pneumatic speed control circuits.
11. Compressor controls.
12. Pressure drop in air distribution systems
13. Circuits incorporating accumulators and gear reducers.

#### Learning Outcomes

1. Determine information required to analyze hydraulic and pneumatic systems.
2. Identify how circuit components affect one another.
3. Describe the effects of various pressure, flow, and directional control.
4. Troubleshoot fluid power components and systems.
5. Determine uses for various types of control.
6. Implement fluid power safety techniques.
7. Identify component failure.
8. Demonstrate pump unloading techniques.
9. Calculate filtration requirements.
10. Analyze electro-pneumatic systems.

#### Credit Details

Lecture: 4

Lab: 0

OJT: 0

MnTC Goal Area(s): None

