

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. MECH

COURSE NUMBER: 2126

NUMBER OF CREDITS: 4

Lecture: 4 Lab: 0 OJT: 0

Course Title:

Systems Analysis

Catalog Description:

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

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

Pump unloading systems.

Load locking circuits.

Filtration.

Component failure analysis.

Open/closed center circuits.

Circuit safety measures.

Circuits with open and closed loop pumps

Counterbalance, sequencing, mobile vehicles and braking circuits.

Internal/external drain and pilot for control valves.

Pneumatic speed control circuits.
Compressor controls.
Pressure drop in air distribution systems
Circuits incorporating accumulators and gear reducers.

Student Learning Outcomes
Determine information required to analyze hydraulic and pneumatic systems.
Identify how circuit components affect one another.
Describe the effects of various pressure, flow, and directional control.
Troubleshoot fluid power components and systems.
Determine uses for various types of control.
Implement fluid power safety techniques.
Identify component failure.
Demonstrate pump unloading techniques.
Calculate filtration requirements.
Analyze electro-pneumatic systems.

Is this course part of a transfer pathway: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<small>*If yes, please list the competencies below</small>

Revised Date: 1/27/2022