

# MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

## COURSE OUTLINE

DEPT. RNEW

COURSE NUMBER: 1100

NUMBER OF CREDITS: 3

Lecture: 3 Lab: 0 OJT 0

### Course Title:

Process Dynamics

### Catalog Description:

Process Dynamics introduces concepts which deal with physical forces and their relationship to energy through temperature and pressure and are frequently encountered in an operation plant environment. An explanation and understanding of a plant system is crucial to this course. The scientific principles of flow, temperature, pressure heat, gasses, liquids, solids, fluid systems, process dynamics and heat transfer are covered in detail. The curriculum of this course encompasses basic physics and science.

### Prerequisites or Necessary Entry Skills/Knowledge:

None

### 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

Mathematics

Chemistry

Physics

Machines

Fluid Systems

Process Variables and Measurement

Heat

Elements of Control Systems
Statistical Process Control
Process Sampling

<b>Student Learning Outcomes</b>
Describe the principles of temperature, pressure and flow, and the relationships that exist between them.
Identify fluid systems and discuss environmental factors that affect them.
Explain heat and heat transfer.
Describe process variables and process variable measurement
Explain the operators' responsibilities in processing plants.

<b>Is this course part of a transfer pathway: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></b> <small>*If yes, please list the competencies below</small>
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Revised Date: 1/1/2022