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. RNEW COURSE NUMBER: 1100

NUMBER OF CREDITS: 3 Lecture: 3 Lab: 0 OJT 0

<table>
<thead>
<tr>
<th>Course Title:</th>
<th>Process Dynamics</th>
</tr>
</thead>
</table>

**Catalog Description:**
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)**

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

### Student Learning Outcomes

1. Describe the principles of temperature, pressure and flow, and the relationships that exist between them.
2. Identify fluid systems and discuss environmental factors that affect them.
3. Explain heat and heat transfer.
4. Describe process variables and process variable measurement.
5. Explain the operators’ responsibilities in processing plants.

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

Revised Date: August 2020