DEPT: Renewable Energy Technology COURSE NUMBER: RNEW 2105

NUMBER OF CREDITS: 1 COURSE TITLE: Process Dynamics Lab

CATALOG DESCRIPTION:

This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program. This lab gives hands-on exposure to concepts, which deal with physical forces and their relationship to energy through temperature and pressure and are frequently encountered in an operating plant environment. An explanation and understanding of a plant system is crucial to this course. The scientific principles of flow, temperature, pressure, heat, gases, liquids, solids, fluid systems, process dynamics, and heat transfer, are covered in detail. The curriculum of this course encompasses basic physics and science.

AUDIENCE: Trainees for Process Operation and Plant Personnel

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:
This course will run concurrent course with Process Dynamics Theory.

LENGTH OF COURSE: 1 credits (0 lecture, 1 lab, 0 other)

THIS COURSE IS USUALLY OFFERED:
Every other year □ fall X spring □ summer □ undetermined □

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT: The student will achieve and be able to apply the basic skills and concepts of industrial physics.

2) THINKING SKILLS: The student will understand the information required to apply the components and concepts discussed in this course.

3) COMMUNICATIONS SKILLS: The student will demonstrate both written and oral communication skills.

4) HUMAN DIVERSITY: The student will gain self-awareness regarding the feelings towards people regardless of culture, values or socioeconomic status.
TOPICS TO BE COVERED:

2. Explain the laws of force motion, and apply them to examples in the plant.
3. Describe units of measure for flow rate, velocity, and mass.
4. Define work and explain its relationship to energy.
5. Identify means of measuring temperature and heat transfer.

LIST OF EXPECTED COURSE OUTCOMES: The student will understand the basic principals of science and physics and how they are applied in a processing environment.

LEARNING/TEACHING TECHNIQUES used in the course are:
X Collaborative Learning
X Student Presentations
X Creative Projects
☐ Lecture
X Demonstrations
X Lab

☐ Problem Solving
☐ Interactive Lectures
☐ Individual Coaching
☐ Films/Videos/Slides
☐ Other (describe below)

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
X Reading
X Oral Presentations
X Textbook Problems
X Group Problems
☐ Other (describe below)

X Tests
X Worksheets
☐ Papers
☐ Term Paper

X Individual Projects
X Collaborative Projects
☐ Portfolio

The information in this course outline is subject to revision

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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