MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty is 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. Biofuels Technology
COURSE NUMBER: RNEW 1100
NUMBER OF CREDITS: 3
COURSE TITLE: Process Dynamic

CATALOG DESCRIPTION: This course 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.

AUDIENCE: This course is designed for any individual that would like to increase their knowledge about process dynamics in industrial operating plants.

FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)
Area: by meeting the following competencies:
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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: None

LENGTH OF COURSE: One semester

THIS COURSE IS USUALLY OFFERED:
Every other year ☐ fall ☑ spring ☐ summer ☐ undetermined ☐

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

1) ACADEMIC CONTENT: The academic objectives of this course are:
   a. Introduce students to concepts which deal with physical forces and their relationship to energy through temperature and pressure.
   b. Introduce students to basic physics and chemistry principles and their relationship to fluid systems and process flow.
   c. Introduce students to industrial requirements for mathematical applications.

2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. Written explanation of chapter topics
   b. Applying the learned course materials in an academic and industrial setting
3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Interactive participation in on-line classroom discussion
   b. Written skills development will be reinforced through short-answer study guides, reports, and electronic communications

4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. Respectable participation in on-line classroom discussions

TOPICS TO BE COVERED:

LIST OF EXPECTED COURSE OUTCOMES:
1) Students will gain knowledge about the principles of temperature, pressure and flow, and the relationships that exist between them.
2) Students will gain knowledge about fluid systems and environmental factors that affect them.
3) Students will become familiar with heat and heat transfer
4) Students will be familiar with process variables and process variable measurement

LEARNING/TEACHING TECHNIQUES used in the course are:
☐ Collaborative Learning  X Problem Solving
☐ Student Presentations  X Interactive Videos
☐ Creative Projects  X Individual Coaching
☐ Lecture  X Films/Videos/Slides
☐ Demonstrations  ☐ Other (describe below)
☐ Lab

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
X Reading  X Tests  ☐ Individual Projects
☐ Oral Presentations  X Worksheets  ☐ Collaborative Projects
X Textbook Problems  ☐ Papers  ☐ Portfol
☐ Group Problems  ☐ Term Paper
☐ Other (describe below)

EXPECTED STUDENT LEARNING OUTCOMES:
Upon completion of the course, students should understand the scientific principles of flow, temperature, pressure, heat, gases, liquids, solids, fluid systems, process dynamics and heat transfer. In addition, the students will become familiar with the operators’ responsibilities in processing plants.

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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