MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

DEPT. RNEW   **COURSE NUMBER: 1102**

NUMBER OF CREDITS: 2   **Lecture: 2 Lab: 0 OJT 0**

Course Title:
Biodiesel Process Fundamentals

Catalog Description:
Biodiesel Process Fundamentals provides detailed information regarding the overall fundamental process of biodiesel production. The course will include a review of biodiesel chemistry, process engineering, post reaction processing, fuel specification and properties, feedstock preparation, treatment and recovery of side streams, fuel transportation storage and general plant operations.

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
History of biodiesel
Define the common terminology

Define the chemistry relating to biodiesel production:
    i.   Reactants: triglycerides, fatty acids, alcohol, catalyst
    ii.   Products: biodiesel, water, crude glycerin, soap

Reaction trouble shooting
Describe the process engineering
Fuel properties

a. Comparison to petroleum diesel
Fuel specifications according to ASTM and European standards
Introduction to BQ-9000
Social, economic, and environmental benefits and concerns of biodiesel production
Globalization

Student Learning Outcomes
Explain biodiesel processing and the chemistry that supports the production technology.
Discuss process parameters.
Identify fuel properties.
Differentiate between biodiesel and petroleum diesel properties.
Describe fuel specifications.
Discuss the social, economic, and environmental benefits and concerns associated with biodiesel production.

Is this course part of a transfer pathway: Yes ☐   No ☒
If yes, please list the competencies below

Revised Date: 1/1/2022