DEPT: WIND ENERGY
COURSE NUMBER: ELWT 1100
NUMBER OF CREDITS: 3 Credits (Lecture)
COURSE TITLE: WIND ENERGY FUNDAMENTALS

CATALOG DESCRIPTION:
This course introduces the student to turbine designs, types and development, as well as their current status. The evolution of current models and sizes offered by existing companies will be traced from earlier examples. The operational experience, track record, and number of turbines in operation will be evaluated. The students will also discover the economical, environmental and political issues associated with Wind Energy.

AUDIENCE: Wind Energy Students

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 SKILL/KNOWLEDGE: NONE

LENGTH OF COURSE: 1 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. Address safety issues related to the wind energy field
   b. Identify different parts of a wind turbine
   c. Identify with the past and future of wind energy
   d. Describe how the wind works
   e. Nomenclature of wind energy industry
   f. Apply calculations and equations to wind energy

2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. Completing homework (reading, reports, and worksheets)
   b. Participating in classroom discussions
   c. Taking open and closed book quizzes and tests
   d. Performing internet research on wind energy
3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Participating in class discussions and reports
   b. Participating in assignments, worksheets, and reports

4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. Participating in classroom discussions
   b. Working with other students on internet research
   c. Working with students from other cultures

TOPICS TO BE COVERED:
1) Past and future of Wind Energy
2) Affects of terrain on wind
3) Types of wind energy
4) Wind turbine layout
5) Nomenclature of the wind industry field
6) Wind reliability
7) How wind works
8) Systems of wind energy
9) Wind turbine parts
10) Issues facing wind energy
11) Impact of wind energy on society and the environment
12) Plant Documents and Symbology

LIST OF EXPECTED OUTCOMES:
1) Students will be able to identify turbine parts and where they are located
2) Students will have a better understanding of how wind works and its reliability
3) Students will have a better understanding of the past and future of wind turbines

LEARNING/TEACHING TECHNIQUES USED IN THIS COURSE:
- Collaborative Learning
- Interactive Lectures
- Lecture
- Other (describe below)

ASSIGNMENTS & ASSESSMENTS USED IN THIS COURSE MAY INCLUDE:
- Reading
- Worksheets
- Portfolio
- Other (as determined by the instructor)

EXPECTED STUDENT LEARNING OUTCOMES:
The student will learn the different turbine designs, types and development, as well as their current status. The students will learn the evolution of current wind turbine models and sizes offered by existing companies will be traced from earlier examples. The operational experience, track record, and number of turbines in operation will be evaluated. The students will also learn the economical, environmental and political issues associated with Wind Energy.

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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