

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. SOLR

COURSE NUMBER: 2020

NUMBER OF CREDITS: 3

Lecture: 3 Lab: 0 OJT 0

Course Title:

Advanced Photovoltaic Systems

Catalog Description:

Advanced Photovoltaic Systems will introduce photovoltaic (PV) systems design, installation, operation, and maintenance for residential and commercial applications. Students will collect and interpret data. They will apply this data to the design and configuration of grid-tied and standalone system designs.

Prerequisites or Necessary Entry Skills/Knowledge:

ELCO 1110 or ELCO 1100 (Minimum grade: 2.0 GPA equivalent) or above

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

Introduction to the installation of a Photovoltaic (PV) Systems.

PV systems components & configurations for installation.

PV system permitting, inspection, and commissioning.

Student Learning Outcomes

Describe the purposes of the major components in PV systems.

Identify the relationships between PV cells, modules, and arrays.

Describe how array orientations can maximize the solar energy gain on modules.

Demonstrate how solar radiation and climate data are used in sizing and estimating performance for PV systems.

Calculate the size and configuration of the battery bank based on system

requirements and charge controller.
Identify the appropriate types of conductors for PV system circuits based on application and environment.
Describe the common requirements for permit applications.
Describe the labeling requirements for PV system components and configurations.

Is this course part of a transfer pathway: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> *If yes, please list the competencies below

Revised Date: 2/2020