

WEI RENG 103 SOLAR POWER FUNDAMENTALS SYLLABUS

DATE: March 2011

CREDITS: 5.0

PREPARED BY: Jim Swartos

COURSE DESCRIPTION: Fundamentals of solar radiation, site surveys, components, arrays, batteries and charge controllers.

CO/PREREQUISITE(S): None

TEXT: Photovoltaic Systems, 2nd Ed, Dunlop, ISBN 9780826913081

LAB MANUAL:

COURSE GOALS: Upon successful completion of the course students will be knowledgeable of basic solar power systems, site surveys, battery arrays and charge controllers.

COURSE OBJECTIVES: Upon successful completion of the course, students will be able to:

- 1) Explain solar radiation and photovoltaic applications
- 2) List the basic steps in a site survey
- 3) Solve basic electrical problems involving voltage, current, resistance, and power.
- 4) Explain the relationship between solar system components.
- 5) List the factors that are important in selecting batteries for a PV system
- 6) Explain the importance of charge controllers.

COURSE CONTENT OUTLINE:

- A. Introduction to Photovoltaic Systems
- B. Solar Radiation
- C. Site Surveys
- D. Components & Configurations
- E. Modules & Arrays
- F. Batteries
- G. Charge Controllers

EVALUATION METHODS/GRADING PROCEDURES:

Students will be evaluated and grades will be awarded on the following criterion: Attendance; Homework/Assignments; Labs/Projects; and a comprehensive Final Exam.

Grading will conform to the rules and policies set forth by the Administration of Washington Engineering Institute.

PLANNED TEACHING METHODS/LEARNING STRATEGIES:

Lecture

Laboratory

Individualized Instruction

Small Group Discussion

Audiovisual

Special Project

Other (List)

WEI Administrator Approval