

ARIZONA WESTERN COLLEGE
SYLLABUS

SLR 105 INTRODUCTION TO SOLAR PHOTOVOLTAICS 1

Credit Hours: 3 Lec 2 Lab 2

PREREQUISITE: NONE

NOTE: Completion of ECT 220 and 225 or prior experience as an electrical contractor recommended

COURSE DESCRIPTION

Introduction to photovoltaic (PV) systems.

1. COURSE GOAL

Provide the student with basic photovoltaic theoretical and practical training.

2. OUTCOMES

Upon satisfactory completion of this course, students will be able to:

- 2.1 identify safety hazards associated with PV installations.
- 2.2 describe how to install a simple grid-connected PV system.
- 2.3 compare the advantages and disadvantages of installing a Solar-PV system.
- 2.4 describe how the different types of solar energy technologies utilize solar radiation.
- 2.5 identify the factors affecting the sun's apparent position and path through the sky.
- 2.6 evaluate how array orientation affects solar energy received by modules.
- 2.7 identify factors to consider in a preliminary assessment, including the local solar resource, environmental conditions and building code and utility interconnection requirements.
- 2.8 identify factors to be considered when preparing a proposal, including estimates for cost, size, performance and a value of a PV system.
- 2.9 describe the purposes and functions of the major components in PV systems.
- 2.10 compare the features, requirements and applications of various PV system configurations.
- 2.11 describe how the electrical load, solar radiation and operating temperature affect the electrical output of a PV device.
- 2.12 determine the electrical output of similar and dissimilar PV devices connected in series and in parallel.
- 2.13 differentiate between the basic types and classifications of batteries.
- 2.14 describe how temperature, discharge and charge rates and electrolyte specific gravity affect battery capacity and life.
- 2.15 identify the principle functions and features of charge controllers.
- 2.16 identify concerns and requirements for charge controller applications and installation.

3. METHODS OF INSTRUCTION

- 3.1 Lecture
- 3.2 Lab activities
- 3.3 Presentations
- 3.4 Demonstrations

4. LEARNING ACTIVITIES

- 4.1 Group discussions
- 4.2 Classroom demonstrations
- 4.3 Lab participation

5. EVALUATION

- 5.1 Quizzes/exams
- 5.2 Written assignments

5.3 Lab assignments

5.4 Participation

6. STUDENT RESPONSIBILITIES

6.1 Under AWC Policy, students are expected to attend every session of class in which they are enrolled.

6.2 If a student is unable to attend the course or must drop the course for any reason, it will be the responsibility of the student to withdraw from the course. Students who are not attending as of the 45th day of the course may be withdrawn by the instructor. If the student does not withdraw from the course and fails to complete the requirements of the course, the student will receive a failing grade.

6.3 Americans with Disabilities Act Accommodations: Arizona Western College provides academic accommodations to students with disabilities through AccessABILITY Resource Services (ARS). ARS provides reasonable and appropriate accommodations to students who have documented disabilities. It is the responsibility of the student to make the ARS Coordinator aware of the need for accommodations in the classroom prior to the beginning of the semester. Students should follow up with their instructors once the semester begins. To make an appointment call the ARS front desk at (928) 344-7674 or ARS Coordinator at (928) 344-7629, in the College Community Center (3C) building, next to Advising.

6.4 Academic Integrity: Any student participating in acts of academic dishonesty—including, but not limited to, copying the work of other students, using unauthorized “crib notes”, plagiarism, stealing tests, or forging an instructor’s signature—will be subject to the procedures and consequences outlined in AWC’s Student Code of Conduct.

6.5 Texts and Notebooks: Students are required to obtain the class materials for the course.

6.6 Arizona Western College students are expected to attend every class session in which they are enrolled. To comply with Federal Financial Aid regulations (34 CFR 668.21), Arizona Western College (AWC) has established an Attendance Verification process for “No Show” reporting during the first 10 days of each semester.

Students who have enrolled but have never attended class may be issued a “No Show” (NS) grade by the professor or instructor and receive a final grade of “NS” on their official academic record.

An NS grade may result in a student losing their federal financial aid.

For online classes, *student attendance in an online class is defined as the following* (FSA Handbook, 2012, 5-90):

- Submitting an academic assignment
- Taking an exam, an interactive tutorial or computer-assisted instruction
- Attending a study group that is assigned by the school
- Participating in an online discussion about academic matters
- Initiating contact with a faculty member to ask a question about the academic subject studied in the course