

ARIZONA WESTERN COLLEGE  
SYLLABUS

SLR 110 INTRODUCTION TO SOLAR PHOTOVOLTAICS 2

Credit Hours: 3 Lec 2 Lab 2

PREREQUISITE: SLR 105

COURSE DESCRIPTION

Advanced photovoltaic (PV) training.

1. COURSE GOAL

Prepare the student to sit for the North American Board of Certified Energy Practitioners (NABCEP) PV Entry Level Exam.

2. OUTCOMES

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

- 2.1 explain the basic types of inverters used in PV systems.
- 2.2 describe inverter specifications and ratings.
- 2.3 differentiate between the approaches and methodologies for sizing different types of PV systems.
- 2.4 calculate the critical design parameters based on monthly load and insolation information.
- 2.5 identify the key considerations for integrating arrays on buildings and other structures.
- 2.6 differentiate between the various types of mounting configurations and their features.
- 2.7 identify the electrical codes, regulations and practices applicable to PV systems.
- 2.8 determine the appropriate types of conductors for PV systems and the appropriate conductor ampacities and over current protection for various circuits.
- 2.9 identify the applicable codes and standards for utility interconnection.
- 2.10 differentiate between load-side and supply-side interconnections and identify the code and installation requirements for each type.
- 2.11 describe the role of the building codes and code enforcement in electrical installations and identify the applicable NEC articles for both general electrical systems and PV specific requirements.
- 2.12 describe the function of an inspection checklist in checking a PV system for common installation code compliance issues.
- 2.13 describe the steps involved with commissioning a new PV system and identify the maintenance tasks involved with maximizing array output, battery health and other equipment operation.
- 2.14 compare the various methods of monitoring system parameters for performing verification and troubleshooting.
- 2.15 compare the numerous incentive options based on type, availability and requirements.
- 2.16 determine whether a PV system can pay back its costs compared to an alternate energy source.

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