ATCT-2806: SPECIAL TOPICS IN INTRODUCTION TO SOLAR INSTALLATIONS

Cuyahoga Community College

Viewing: ATCT-2806 : Special Topics in Introduction to Solar Installations

Academic Term:
Fall 2026

Subject Code
ATCT - Appld Indus Tech - Carpentry

Course Number:
2806

Title:
Special Topics in Introduction to Solar Installations

Catalog Description:
Introduction to the methods and tools required to install solar panels. Covers basic knowledge of solar panels, the relationship to the sun depending on geographical location, and OSHA standards that apply to the jobsite situation (working on roofs, fall protection, PPE, etc). Production methods will also be emphasized. Upon successful completion of this course, student will earn a 4-year Solar Installer Qualification. This can be renewed with an eight-hour refresher course.

Credit Hour(s):
2

Lecture Hour(s):
2

Requisites

Prerequisite and Corequisite
Departmental approval: admission to apprenticeship program.

Outcomes

Course Outcome(s):
Follow proper procedures for installing piling, racking, and solar panels from various manufacturers in order to get the most efficiency out of a solar array.

Objective(s):
1. Describe the three types of installations associated with solar installations,
2. Identify the parts of a photovoltaic system and its associated hardware.
3. Interpret the prints, specifications, and installation steps associated with solar installations.
4. Discuss the impact of installing solar panels correctly to get the most efficiency out of a solar array.
5. Demonstrate the proper and safe use of the hand and power tools used to install solar panels and their racking systems.
6. Assemble racking systems from various manufacturers.
7. Install solar panels on the assembled racking systems.

Course Outcome(s):
Follow OSHA guidelines for safety when installing solar panels.

Objective(s):
1. Discuss fall protection guidelines for working on roofs.
2. Identify the Personal Protective Equipment used with solar installations.
3. Demonstrate proper use of personal protective equipment.
4. List common fall and site safety hazards.

Course Outcome(s):

Explain proper job site preparation for installing solar panels.

Objective(s):

1. Discuss site inspection requirements.
2. Identify required materials and tools needed for solar panel installation.

Methods of Evaluation:

1. Homework
2. Exams
3. Participation
4. Projects

Course Content Outline:

1. Tools
   a. Hand tools
      i. Socket wrench with appropriately sized sockets
      ii. 25' tape measure
      iii. Torpedo level
   b. Power Tools
      i. Impact drill with appropriate tips
2. Safety Considerations
   a. Hand tools
      i. Eye protection
      ii. Gloves
   b. Portable power tools
      i. Work support
      ii. Eye protection
      iii. Hearing protection
3. Job site Preparation
   a. Site inspection
      i. Terrain
      ii. Pile and racking
      iii. Solar panels
   b. Materials
      i. Hardware and fasteners
      ii. Solar panels
4. Installation techniques
   a. Piling
   b. Racking
   c. Solar panels

Religious Accommodation

Before reviewing the course schedule, students should carefully review the following religious accommodation policy and other required instructional policies:

Religious Accommodation:

Students seeking an accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor with written notice of the specific dates for which the student requires an accommodation and must do so not later than fourteen (14) days after the first day of instruction. Please submit requests for accommodations at this link: https://portal2.tri-c.edu/ReligiousAccommodation/ Religious Accommodation Form. Students with questions about their religious accommodations under Ohio's Testing Your Faith Act may contact the College's Office of General Counsel and Legal Services by phone at 216.987.4856 or via email at legal@tri-c.edu.

Other Required Instructional Policies:

https://www.tri-c.edu/student-resources/curriculum/documents/syllabus-part-b.pdf

Weekly Schedule

	Topics
Week 1	Course Introduction & Safety Basics
Week 2	Hand Tools – Identification & Use
Week 3	Power Tools – Operation
Week 4	Tool Integration & Safety Application
Week 5	Job Site Preparation – Site Inspection
Week 6	Job Site Preparation – System Components
Week 7	Materials & Fasteners
Week 8	Job Sequencing & Workflow
Week 9	Piling – Fundamentals
Week 10	Piling – Installation
Week 11	Racking – Fundamentals
Week 12	Racking – Installation
Week 13	Solar Panels – Fundamentals
Week 14	Solar Panels – Installation
Week 15	System Integration & Review
Week 16	Finals Week

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Required/Recommended Readings
Instructor Provided Materials.

Resources for the Instructor

Dunlop, James P. *Photovoltaic Systems*. 3rd. NJATC, 2012.

Solar Energy International. *Photovoltaics Design and Installation Manual*. Solar Energy International, 2004.

Carpenters International Training Fund Solar Student Manual. 2023. www.carpenters.org

Iron Ridge online Solar Installer Training and Certification. Iron Ridge, 2023. https://www.ironridge.com/resources/installer-cert/

Holt, Mike. *2023 NEC Requirements for Photovoltaic and Energy Storage Systems*. Mike Holt Enterprise of Leesburg, Inc., 2023.

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