

FSPV: Fundamentals of Solar PV Design and Installation 2024

COURSE DESCRIPTION

This 40-hour course is dedicated to the technical aspects of solar photovoltaic (PV) design and installation. This includes a focus on system types, components, applications, design and best practices for installation, maintenance, and troubleshooting. The first four days are taught in a classroom format and focus on cumulative technical theory. The fifth day, participants engage in a hands-on installation of a fully integrated grid-tied, residential PV system.

NABCEP PV Associate Exam: The 40-hour course is based on NABCEP's Learning Objectives for [NABCEP PV Associate](#). After completing the FSPV course, participants are eligible to sit for the [NABCEP PV Associate](#) Exam. There is an additional \$150 fee to sit for the exam. You will receive more information about the NABCEP exam during the course or you can visit NABCEP's website to learn more about the [Associate PV Credential](#).

WHO SHOULD ATTEND THIS COURSE

- High school or college graduates interested in entering the solar or renewable energy industry
- Individuals transitioning careers into the solar or renewable energy industry
- Individuals interested in fundamental technical information about solar photovoltaic systems and the solar industry
- Electricians
- Professional Engineers
- Energy Professionals
- Code Officials
- Emergency Service Providers
- Facility Energy Managers
- Architects and Building Designers

CONTINUING EDUCATION INFORMATION FOR 2024

- 32 PDHs are approved by the NC Board of Examiners for Professional Engineers and Land Surveyors (NCBELS)
- 40 LU/HSW are approved by the American Institute of Architects (AIA), course code FSPV2024
- 24.0 CEs are approved by the North Carolina Board of Examiners for Electrical Contractors (NCBEEC)
- 40 hours are approved to sit for the PV Associate Exam administered by the North American Board of Certified Energy Practitioners (NABCEP). For more information about the Associate Program, visit nabcep.org.

COURSE SCHEDULE

Day 1	<p>Photovoltaic Principles</p> <ul style="list-style-type: none"> • Overview and history of PV • Trends and emerging technologies • Overview of PV system components and system types • Basics of electricity, power and energy review, electrical load analysis • Solar site analysis
Day 2	<p>PV Module Basics and Performance Considerations</p> <ul style="list-style-type: none"> • Module specifications and performance calculations • Wiring modules- series/parallel • Racking types and considerations <p>Grid-Direct Systems</p> <ul style="list-style-type: none"> • Grid-direct inverter considerations • Grid-direct system sizing • Grid-direct system energy production calculations
Day 3	<p>Wiring, Grounding, and Balance of System Components</p> <ul style="list-style-type: none"> • Conductor considerations and wire sizing • Grounding • Overcurrent protection, combiner boxes and disconnects <p>Battery-based Systems</p> <ul style="list-style-type: none"> • Battery-based inverter considerations • Battery basics and specifications • Charge controllers • Sizing battery-based systems
Day 4	<p>Safe installation and commissioning, maintenance and servicing techniques</p> <ul style="list-style-type: none"> • Data monitoring • Safety and Commissioning • Expedited permitting process • Safety Prep for outdoor lab
Day 5	<p>Hands-on Lab</p> <ul style="list-style-type: none"> • Balance of System worksheet • Lay out racking • Mount and Wire up PV panels • Wire inverter and A/C and D/C disconnects • Power up Live Grid-tied PV system • Safety and Commissioning