



# **SOLAR ENERGY INTERNATIONAL**

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Educate. Engage. Empower.

## **2024 School Catalog and Student Handbook**

**39845 Mathews Lane  
Paonia, CO 81428  
(970) 527-7657**

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**Approved and Regulated by the Colorado Department of Higher Education, Private  
Occupational School Board**

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## **Introduction**

Solar Energy International (SEI) (hereinafter referred to as SEI) was founded in 1991 as a nonprofit educational organization. Our mission is to provide industry-leading technical training and expertise in renewable energy to empower people, communities, and businesses worldwide. Why? Because we envision a world powered by renewable energy!

## **SEI Executive Leadership, Board of Directors, and Advisory Board**

### **Executive Leadership Team**

- Wendy Knapp  
Vice President of Curriculum & Instruction
- Monique Turek  
Vice President of Student Services
- Denise Massart  
Vice President of Administrative Services
- Chris Turek  
Vice President of Marketing & Business Development
- Kristopher Sutton  
Senior Technical Advisor

### **Chief Financial Officer**

Paul Gibb

### **Board of Directors**

- Gerald Espinosa, President
- Paul Bony, Vice President
- Cathryn Peterson, Secretary-Treasurer
- Kristan Kirsh
- Zach Krapfl
- Kathryn Swartz
- Johnny Weiss

### **SEI Industry Advisory Committee**

- Kelly Larson - Independent Solar PV / Electrical Contractor
- Connor English - CEO and Co-Founder at PVBid
- Paul Mync - Sr. Director at Erthos
- Jason Kechijian - Program Manager at United Renewable Energy
- Johan Alfsen - Senior Director of Training at K2 Systems

## SEI Instructors and Curriculum Team

- Albith Colon
- Alejandro Cisneros
- Alex Jahp
- Amy Scher
- André Simão
- Bertram Peterson
- Bill Hoffer
- Brad Burkhartzmeyer
- Brian Mehalic
- Calvin Angell
- Camilo Uzquiano
- Carlos Oreamuno
- Carol Weis
- Channa Silva
- Chris Brooks
- Chuck Marken
- Danny Bailey
- David del Vecchio
- Diane Patrick
- David Rangel
- Eissa Ali
- Eric Westerhoff
- Ernesto Biesto
- Ernesto Grossman
- Flint Richter
- Garrison Riegel
- Gary Handelin
- JR Whitley
- Jack O'Donohue
- Jason Lerner
- Jay Peltz
- Jay Pozner
- Jeff Nicholson
- Jeff Tobe
- Jimmy Thompson
- Joe Villacci
- Justine Sanchez
- Karo Fernández
- Kelly Laron
- Ken Gardner
- Khanti Munro
- Kienan Maxfield
- Kris Sutton
- Kyle Bolger
- Kyra Holt
- Laura Conchelos
- Laura Walters
- Lena Wilensky
- Luis Coronado
- Luis Fernando Mulcue Nieto
- Marlon Acevedo Rios
- Max Fernández
- Nick Mshar
- Orion Thornton
- Pablo Hernández
- Phil Friedman
- Rafael Gil
- Ramon Ventura
- Rebekah Hren
- Reny Ventura
- Roger Williams
- Ryan Bradt
- Sarah Ray
- Sarah Wilder
- Scott Martin
- Steve Sefchick
- Tamara Lashbrook
- Tom Honey
- Tony Diaz
- Vaughan Woodruff
- Will White
- Zeke Yewdall

## Educational Services

### SEI SOLAR PROFESSIONALS CERTIFICATE PROGRAM TRACKS and TUITION COSTS

The SEI Solar Professionals Certificate Program (SPCP) is a selective admissions program to help ensure the success of our students and provide a quality workforce for the solar industry. To determine a candidate's likelihood of program completion, alignment of career goals, and overall good fit for this professional training program, we require a certificate program application to be completed by every student candidate. This is required for any certificate path and acceptance into the overall program. Multiple certificates can be earned by adding courses to your original Certificate Path.

The following certificate tracks prepare graduates for a career in the clean energy sector by exposing participants to the leading renewable energy technologies that are found throughout the world. Training hours earned through these certificate program tracks also satisfy the required training hours found in the industry's most recognized certifications to include the North American Board of Certified Energy Practitioners (NABCEP) certification options. The SPCP certificate tracks are NOT considered professional certification and serve as proof of graduation from SEI's training program. Colorado students, if applicable, check with appropriate Colorado regulatory agencies to confirm program/course work will satisfy initial or renewal licensing or certification of that agency.

## Residential and Commercial Photovoltaic Systems Certificate

**Occupational Objective:** The graduate should be able to acquire an entry-level position in the solar industry as an installer, designer, site analyst, field manager, field technician or other related entry level position.

**Required Courses (5) and Training Progression:** PV101 or PVOL101 > PV201L > PV202 or PVOL202 > PV203 or PVOL203 > PV303 or PVOL303

**Total Contact Training Hours: 200-240 hours**

\* total hours and pricing will vary depending on student's selection of in-person or online courses

**Program Tuition: \$4,825- \$5,825**

This certificate path covers a comprehensive spectrum of grid-direct and battery-based residential and commercial photovoltaic design and installation applications. Applying the National Electric Code and job-site safety considerations will be strongly emphasized in this certificate program. The technical concepts needed as a solar professional, whether you're working on single family homes to commercial projects to utility scale systems, will be covered in this program. This Certificate Program will satisfy the training portion of the requirements for the [NABCEP PV Associate Exam](#) and the [NABCEP PV Certification exams](#).

## Battery-Based Photovoltaic Systems Certificate

**Occupational Objective:** The graduate should be able to acquire an entry-level position in the solar industry as an installer, designer, site analyst, field manager, field technician or other related entry level position.

**Required Courses (6) and Training Progression:** PV101 or PVOL101 > PV203 or PVOL203 > PV201L > PV301L > PV303 or PVOL303 > PV304 or PVOL304

**Total Contact Training Hours: 240-260 hours**

\* total hours and pricing will vary depending on student's selection of in-person or online courses

**Program Tuition: \$6,270 - \$7,470**

Even though the vast majority of solar photovoltaic applications are now grid-direct, there are homes and industries that need battery-based photovoltaic systems. Through this certificate

program you will be trained on the technical application of solar photovoltaic battery-based systems to serve many different areas such as telecommunications, agricultural applications, off-grid homes and other remote applications, and grid-connected battery back-up systems.

## **Solar Business and Technical Sales Certificate**

**Occupational Objective:** The graduate should be able to acquire an entry-level position in the solar industry as a sales representative, installer, designer, site analyst, field manager, field technician or other related entry level position.

**Required Courses (5) and Training Progression:** PV101 or PVOL101 > PV201L > PV202 or PVOL202 > PV203 or PVOL203 > PVOL206

**Total Contact Training Hours: 220-260**

\* total hours and pricing will vary depending on student's selection of in-person or online courses

**Program Tuition: \$5,025- \$5,675**

This certificate path is perfect for an individual who is seeking a sales or product representative position in the solar industry or is considering starting their own business. A solid focus on the technical, economic, and financial aspects of the solar industry are covered in this program to prepare you for the fast paced and highly dynamic solar industry. In addition to understanding all the financial incentives and sales techniques, being technically competent in the application and installation of photovoltaic systems will make you a better sales professional. This certificate program will give you the confidence needed when talking with potential customers about this highly technical field. This Certificate Program will satisfy the training portion of the requirements for the [NABCEP PV Associate Exam](#) and the [NABCEP PV Certification exams](#).

## **International and Developing World Applications Certificate**

**Occupational Objective:** The graduate should be able to acquire an entry-level position in the solar industry as an installer, designer, site analyst, field manager, field technician or other related entry level position.

**Required Courses (5) and Training Progression:** PV101 or PVOL101 > PV203 or PVOL203 > PV301L > PV304 or PVOL304 > RDOL101

**Total Contact Training Hours: 220-240 hours**

\* total hours and pricing will vary depending on student's selection of in-person or online courses

**Program Tuition: \$4,525- \$5,375**

Not all solar professionals are on a roof in the United States installing photovoltaic systems. Some of the most rewarding and meaningful work can be found in the developing world. Solar professionals can be found working for government aid agencies and other non-profit organizations who are training local communities to become self-sustaining. This work is often accomplished through application of renewable energy technologies in some of the most remote areas of the world. This certificate program will take you through the common battery-based photovoltaic technologies and other developing world topics to prepare you for a rewarding career in helping the world realize the hope provided by renewable energy. This Certificate Program will satisfy the training portion of the requirements for the [NABCEP PV Associate Exam](#) and the [NABCEP PV Certification exams](#).

## Renewable Energy Applications Certificate

**Occupational Objective:** The graduate should be able to acquire an entry-level position in the renewable energy industry as an installer, designer, site analyst, field manager, field technician or other related entry level position.

**Required Courses (4) and Training Progression:** PV101 or PVOL101 > SHOL101 > MH101 > RDOL101

**Total Contact Training Hours: 200-220 hours**

\* total hours and pricing will vary depending on student's selection of in-person or online courses

**Program Tuition: \$3,230 - \$3,380**

This certificate program will expose you to other renewable energy technologies and is often a good “add-on” certificate path for a solar professional who has completed one of the other certificate programs. When talking with home or business owners you may be asked your professional opinion about all the options in the renewable energy sector and which technology will best suit their energy needs and location. In order to explain these technologies with utmost confidence, it is best to get hands-on experience in other renewable energy technologies in addition to photovoltaic systems.

## Solar Professionals Trainer Certificate\*\*

**Occupational Objective:** The graduate should be able to acquire a position in higher education / vocational training sector and/or the solar industry as an instructor, trainer, installer, designer, site analyst, field manager, field technician or related position.

**Required Courses (9) and Training Progression:** PV101 or PVOL101 > PV201L > PV202 or PVOL202 > PV203 or PVOL203 > PVOL206 > PV301L > PV303 or PVOL303 > PV304 or PVOL304 > PV351L

**Total Contact Training Hours: 380-420**

\* total hours and pricing will vary depending on student's selection of in-person or online courses

**Program Tuition: \$9,905 - \$11,255**

Hundreds of solar training programs are sprouting up all over, and gaining the knowledge of how to deliver a world class training program can be difficult and daunting. With over 20 years of hands-on and classroom instruction, the SEI curriculum and overall program is the gold standard for solar training and we want to share that knowledge with you. This certificate program will expose you to SEI's best classroom curriculum and lab training experience for you and your instructional staff to get first hand experience in what it takes to put on a full solar training program at your school or training organization. This Certificate Program will satisfy the training portion of the requirements for the [NABCEP PV Associate Exam](#) and the [NABCEP PV Certification exams](#).

\*This certificate program only introduces best teaching practices through the actual experience of taking these courses from SEI Instructors. It is designed for current instructors in a related field or people with a strong background in the PV industry who are seeking an instructional role. SEI recommends that an individual receive additional classroom instruction and classroom management training, if not currently an instructor.

\*\*For the Trainer Certificate you must currently be a college or vocational school instructor in a related field.



# Residential and Commercial Photovoltaic Systems Online Certificate

**Occupational Objective:** The graduate should be able to acquire an entry-level position in the solar industry as an installer, designer, site analyst, field manager, field technician, sales representative or other related level position.

**Required Courses (6) and Training Progression:** PVOL101 > PVOL202 > PVOL203 > PVOL206 > PVOL303 > PVOL350

**Total Contact Training Hours: 300 hours**

**Program Tuition: \$4,770**

This online certificate path covers a comprehensive spectrum of grid-direct and battery-based residential and commercial photovoltaic design and installation applications as well as solar business and technical sales, and operations and maintenance within the solar industry. The online certificate track includes business and O&M topics to give solar professionals a well rounded education exposing them to the sales process prior to installation and O&M considerations after the installation is complete. Applying the National Electric Code and job-site safety considerations will be strongly emphasized in this certificate program. The technical concepts needed as a solar professional, whether you're working on single family homes to commercial projects to utility scale systems, will be covered in this program. This certificate is obtained fully online. This Certificate Program will satisfy the training portion of the requirements for the [NABCEP PV Associate Exam](#) and the [NABCEP PV Certification exams](#).

## Individual Courses and Tuition Costs

**PV101: Solar Electric Design and Installation (Grid-Direct) - \$1,045.00**

**Total Contact Training Hours: 40 hours**

**Prerequisites:** None. Completion of our free online [RE100 Introduction to Renewable Energy](#), is highly recommended.

**Course Description:** PV101 is your gateway to a career in the solar industry. It all starts with the fundamentals, and a solid understanding of various components, system architectures, and applications for PV systems. Other topics include site analysis, system sizing, array configuration, and performance estimation; electrical design characteristics such as wiring, overcurrent protection, and grounding; a detailed look at module and inverter specifications and characteristics; mounting methods for various roof structures and ground-mounts; and an introduction to safely and effectively commissioning grid-direct PV systems. This course focuses on grid-direct PV systems, the largest and fastest growing segment of the PV industry, but covers material critical to understanding all types of PV systems. These core concepts are expanded on in SEI's upper-level PV courses, which focus more specifically on particular system types, applications and design methodologies.

**\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PV202: Advanced PV System Design and the NEC (Grid-Direct) -\$1,045.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** PV 101 or PVOL101

**Course Description:** Take a deep dive into National Electrical Code (NEC®) standards as well as other best practices that pertain to designing grid-direct PV systems. The focus in PV202 is on residential and commercial-scale systems, but the Code requirements, design parameters, and best practices are applicable to all types and sizes of PV installations. Detailed lessons address requirements for disconnects, overcurrent protection, and wire sizing; interconnection requirements and calculations; grounding, ground-faults, and surge protection; calculations for system sizing, inverter selection, and electrical configuration; ground and roof mount details; and commissioning and performance analysis procedures. **\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PV203: PV System Fundamentals (Battery-Based) - \$1,045.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** PV101 or PVOL101, an equivalent course from another organization, or demonstrate field experience and pass a placement quiz.

**Course Description:** Energy storage has been a part of many PV systems since the beginning, but now the market is growing like never before. In PV203 the focus is on the fundamentals of battery-based PV systems. The applications and configurations are many, and their complexity far exceeds that of grid-direct PV systems. Components such as batteries, charge controllers, and battery-based inverters are covered in detail, along with safety and maintenance considerations unique to battery-based systems. Load analysis is critical to system design and will also be addressed along with other design criteria such as battery bank configuration and the electrical integration of the system.

**\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PV303: Advanced PV Multimode and Microgrid Design (Battery-Based) -\$1,045.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** PV101 or PVOL101 AND PV203 PREP or PVOL203 or PV203

**Course Description:** Multimode systems are complex energy storage systems that can operate in utility interactive or island mode - and the market for these systems is experiencing exponential growth. Whether providing backup power when the grid is down, operating in self consumption mode, or reducing peak demand charges, there are numerous use cases for PV systems with energy storage that interact with the utility grid. Lessons include detailed design considerations for AC and DC coupled systems, along with analyzing equipment specifications and thorough design examples. National Electrical Code (NEC®) and other code requirements are addressed in detail along with best practice design considerations for battery-based systems. **\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PV304:Advanced PV Stand-alone System Design (Battery-Based)-\$1,045.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** PV 101 or PVOL101 AND PV203 PREP or PVOL203 or PV203

**Course Description:** The PV industry began with off-grid systems, and with so many new applications for stand-alone power, equipment advancements and cost reductions, the energy storage sector is growing like never before. This advanced course covers detailed load analysis, charge controllers, PV array sizing, stand-alone inverters, as well as numerous design examples that address the wide-ranging specifics of off-grid applications. Other topics include large-scale microgrid considerations, generator sizing and integration, maintenance for stand-alone systems, National Electrical Code (NEC®) requirements, and a healthy dose of best practices that have been learned through years of experience. Advance your PV knowledge well beyond where the grid goes!

**\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PV201L: Solar Electric Lab Week (Grid-Direct) - \$1,645.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** PV101 or PVOL101

**Course Description:** Put the classroom theory into practice with the ultimate hands-on PV experience available! This five day lab class offers students the opportunity to work closely with experienced PV professionals. You will gain valuable insight and experience while installing and commissioning multiple PV systems consisting of modules, inverters, and racking components from a wide range of manufacturers that are all big players in the PV industry. A low student-to-instructor ratio and the world-class lab facility at SEI's home base in Paonia, Colorado combine to make PV201L the perfect environment for your first hands-on PV experience. **\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PV301L: Solar Electric Lab Week (Battery-Based) -\$1,645.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** PV101 or PVOL101 AND PV203 PREP or PVOL203 or PV203

**Course Description:** This five day lab class is an amazing opportunity to get hands-on experience with a wide range of battery-based PV system components and architectures at SEI's world-class lab facility in Paonia, Colorado. Working in small groups with instructors who live and breathe battery-based PV, students install, test, and commission numerous PV systems with energy storage that address a wide range of applications. The labs in PV301L consist of stand-alone and multimode PV systems, and include AC and DC coupled equipment. Many experienced solar professionals have never worked with batteries – this is your chance to leap to the front of the pack!

**\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PV351L: PV Systems - Tools and Techniques for Operation and Maintenance Lab Week (Grid-Direct) - \$1,645.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** PV101 or PVOL101 AND 202, AND 201L or be actively working in the PV field.

**Course Description:** PV351L is an intensive, advanced training designed for solar professionals already working in the PV industry who want to take their technical skills to the next level - and gain hands-on experience with a wide range of advanced analytical tools and meters. A mix of classroom and lab time, theory is immediately applied in the field, with a focus on commissioning, operations and maintenance, troubleshooting, and performance evaluation, using a wide variety of the latest and greatest tools the industry has to offer, including various multimeters, insulation resistance testers, IV curve tracers, and infrared cameras. Learn the advanced skills required to ensure PV systems operate safely and reliably!

**\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**MH101: Micro-Hydro Design & Installation - \$945.00**

**Total Contact Training Hours:** 40 hours

**Prerequisites:** None

**Course Description:** This workshop will cover design considerations as they apply to both low and high head micro-hydro systems. The focus will be on core concepts that may be applied to a wide range of hydro applications, including irrigation ditches that are commonly found throughout the Western U.S. Course instruction will include how to measure elevation differences and water flow rates. Several turbines will be installed and tested as part of the course participation.

## **Online Courses**

**PVOL101: Solar Electric Design and Installation (Grid-Direct) - Online - \$895.00**

**Total Contact Training Hours:** 60 hours

**Total Online Lessons:** 16

**Prerequisites:** None. Completion of our free online [RE100 Introduction to Renewable Energy](#), is highly recommended.

**Course Description:** PV101 is your gateway to a career in the solar industry. It all starts with the fundamentals, and a solid understanding of various components, system architectures, and applications for PV systems. Other topics include site analysis, system sizing, array configuration, and performance estimation; electrical design characteristics such as wiring, overcurrent protection, and grounding; a detailed look at module and inverter specifications and characteristics; mounting methods for various roof structures and ground-mounts; and an

introduction to safely and effectively commissioning grid-direct PV systems. This course focuses on grid-direct PV systems, the largest and fastest growing segment of the PV industry, but covers material critical to understanding all types of PV systems, including energy storage. These core concepts are expanded on in SEI's upper-level PV courses, which focus more specifically on particular system types, applications and design methodologies.

**\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

### **PVOL202: Advanced PV System Design and the NEC (Grid-Direct) -Online-\$895.00**

**Total Contact Training Hours:** 60 hours

**Total Online Lessons:** 10

**Prerequisites:** PV101 or PVOL101, an equivalent course from another organization, or demonstrate field experience and pass a placement quiz.

**Course Description:** Take a deep dive into National Electrical Code (NEC® 2020) standards as well as other best practices that pertain to designing safe and efficient grid-direct PV systems. PV202 focuses on residential and commercial-scale systems, but the Code requirements, design parameters, and best practices are applicable to all types and sizes of PV installations, including utility-scale. Detailed lessons address requirements for disconnects, overcurrent protection, and wire sizing; interconnection requirements and calculations; grounding, ground-faults, and surge protection; calculations and examples for system sizing, inverter selection, and electrical configuration; ground and roof mount details; and labeling and data acquisition systems. **\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

### **PVOL203: PV System Fundamentals (Battery-Based) – Online - \$695.00**

**Total Contact Training Hours:** 40 hours

**Total Online Lessons:** 11

**Prerequisites:** PV101 or PVOL101, an equivalent course from another organization or demonstrate field experience and pass a placement quiz.

**Course Description:** Energy storage has been a part of many PV systems since the beginning, but now the market is growing like never before. In PV203 the focus is on the fundamentals of battery-based PV systems. The applications and configurations are many, and their complexity far exceeds that of grid-direct PV systems. Components such as batteries, charge controllers, and battery-based inverters are covered in detail, along with safety and maintenance considerations unique to battery-based systems. Load analysis is critical to system design and will also be addressed along with other design criteria such as battery bank configuration and the electrical integration of the system.

**\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PVOL303: Advanced PV Multimode and Microgrid Design (Battery-Based) - Online-\$695.00**

**Total Contact Training Hours:** 40 hours

**Total Online Lessons:** 6

**Prerequisites:** PV101 or PVOL101 AND PV203 PREP or PVOL203 or PV203

**Course Description:** Multimode systems are complex energy storage systems that can operate in utility interactive or island mode - and the market for these systems is experiencing exponential growth. Whether providing backup power when the grid is down, operating in self consumption mode, or reducing peak demand charges, there are numerous use cases for PV systems with energy storage that interact with the utility grid. Lessons include detailed design considerations for AC and DC coupled systems, along with analyzing equipment specifications and thorough design examples. National Electrical Code (NEC®) and other code requirements are addressed in detail along with best practice design considerations for battery-based systems. **\*This course is based on NABCEP's PV Installation Professional Job Task Analysis.**

**PVOL304-Advanced PV Stand-alone System Design (Battery-Based)- Online -\$695.00**

**Total Contact Training Hours:** 40 hours

**Total Online Lessons:** 6

**Prerequisites:** PV 101 or PVOL101 AND PV203 PREP or PVOL203 or PV203

**Course Description:** The PV industry began with off-grid systems, and with so many new applications for stand-alone power, equipment advancements and cost reductions, the energy storage sector is growing like never before. This advanced course covers detailed load analysis, charge controllers, PV array sizing, stand-alone inverters, as well as numerous design examples that address the wide-ranging specifics of off-grid applications. Other topics include large-scale microgrid considerations, generator sizing and integration, maintenance for stand-alone systems, National Electrical Code (NEC®) requirements, and a healthy dose of best practices that have been learned through years of experience. Advance your PV knowledge well beyond where the grid goes!

**\*This course is based on NABCEP's PV Technical Sales Professional Job Task Analysis.**

**PVOL206: Solar Business and Technical Sales - Online -\$895.00**

**Total Contact Training Hours:** 60 hours

**Total Online Lessons:** 8

**Prerequisites:** PV101 or PVOL101

**Course Description:** There are many opportunities for different careers in the PV industry, including the business and sales side of it. Addressing the topics in the [NABCEP PV Technical Sales](#) task analysis, PVOL206 focuses on business principles, financial analysis, and system financing. This course is geared toward students who are interested in, or who already are working in, the business or sales side of the PV industry and are looking to improve their sales techniques or are working towards the NABCEP PV Technical Sales Certification.

**\*This course is based on NABCEP's PV Technical Sales Professional Job Task Analysis.**

**PVOL350: Tools and Techniques for Operations and Maintenance - Online - \$695.00**

**Total Contact Training Hours:** 40 hours

**Total Online Lessons:** 12

**Prerequisites:** PV101/PVOL101, an equivalent course from another organization, or demonstrate field experience and pass a placement quiz.

**Course Description:** As more and more PV systems come online, the operations and maintenance (O&M) field is rapidly expanding. This course trains PV O&M technicians to safely and effectively perform O&M tasks, including performance verification, inspections, maintenance activities, commissioning, and troubleshooting. Students will become familiar with a wide range of advanced analytical tools, meters, and techniques – such as I-V curve tracers, thermal cameras, and insulation resistance testers. Learn the theory and practical applications from instructors with real-world experience, using curriculum developed by an industry-leading team of experts. This course is applicable to all sizes of grid-direct PV systems including residential, commercial, and utility-scale; the course does not cover battery maintenance nor medium voltage-specific O&M. Fleet operations and system managers and analysts will also find this course challenging and valuable.

**RDOL101: Appropriate Technology for the Developing World - Online - \$595.00**

**Total Contact Training Hours:** 60 hours

**Total Online Lessons:** 11

**Prerequisites:** None

**Course Description:** This course explores different technologies that are used in development projects to improve the quality of peoples' lives and help eliminate poverty. The class is divided into two sections. The first section surveys technologies that aim to improve people's access to basic human needs: water and sanitation, food processing and cooking technologies, biomass, rural electrification, and appropriate building techniques. The second section of the class focuses on project development and implementation.

**SHOL101: Solar Hot Water Design and Installation - Online - \$445.00**

**Total Contact Training Hours:** 60 hours

**Total Online Lessons:** 12

**Prerequisites:** None

**Course Description:** Students in this course will learn the theory, design considerations and installation strategies necessary to install and maintain a solar domestic hot water system. Passive solar water heaters, drainback systems, antifreeze systems, and photovoltaic powered systems are all addressed, as well as an introduction to pool and space heating systems.

## **Full Training / Class Schedule**

[View the Training Schedule >>](#)

## **Training Schedule and School Policies**

### **In-person and hands-on lab students:**

Monday through Friday 8:00am – 5:00pm with one hour lunch break

### **Online students:**

Students can login at anytime and work at their own pace. There is a suggested pacing guide for each online course as well as live instructors available to answer questions. Students are given 6 weeks to complete all graded activities within the course to receive a record of completion with 2 more weeks of access for post course review totalling 8 weeks of access to the online course.

When an unexpected closure occurs due to extraordinary conditions such as inclement weather, students will be notified as soon as possible by phone and/or email to provide closure information as a public service. Classes are not held on the following holidays:

New Year's Eve, New Year's Day, Martin Luther King Jr. Day, Presidents Day, Memorial Day, Juneteenth, Independence Day, Labor Day, Thanksgiving and the Friday following, Christmas Eve, Christmas Day.

### **Entrance Requirements**

SEI is an open enrollment training organization. However, students still must meet the prerequisites for any course(s) for which they would like to register. Additionally, if a student wishes to be considered for admission into the SEI Solar Professionals Certificate Program, a separate application for admission is required. This program is a selective admissions program where we ask students to complete an application that requires an essay where they can indicate their dedication to successful program completion and their relevant transferable skills that would make them a good candidate for this rigorous training program. Please see application for details, <http://www.solarenergy.org/sei-solar-professionals-certificate-program/>.

**The school does not discriminate based on race, sex, religion, ethnic origin, or disability.**

By completing the accompanying SEI enrollment form, all students agree to comply with the requirements and directions of the training and supply any information that is relevant to safety and medical issues. Additionally, students completing this enrollment form attest to the fact that he or she is physically capable of performing all requirements of the training and agree to comply with all safety regulations and directions given by instructional staff.

### **Enrollment**

Prospective students may enroll anytime. Late enrollments will be accepted only one week into the course for online courses, and the first day of class for in-person and hands-on labs courses.



## **Previous Credits**

Credits from another institution will be evaluated on a case-by-case basis. The student may be asked to provide a transcript, certificate of completion, course catalog, link to the course description from the transferring school's website showing an equivalent course. Students will also be required to take an opt-out quiz to prove proficiency of course material. SEI does not guarantee transferability of our credits to another institution unless there is a written agreement with another institution.

## **Transcripts**

A record of all students' final grades for each course taken is kept in the SEI Student Information System. Students may request an official transcript by contacting the SEI Student Services team at, 970-527-7657. If the student's training is funded by a third-party (eg. employer or Workforce office) SEI may be required to release transcript or other record of student grades to the third party.

## **Postponement of Start Date**

Postponement of a starting date, whether at the request of the school or the student, requires a written agreement signed by the student and the school. The agreement must set forth:

- a. Whether the postponement is for the convenience of the school or the student, and;
- b. A deadline for the new start date, beyond which the start date will not be postponed.

If the course is not commenced, or the student fails to attend by the new start date set forth in the agreement, the student will be entitled to an appropriate refund of prepaid tuition and fees within 30 days of the deadline of the new start date set forth in the agreement, determined in accordance with the school's refund policy and all applicable laws and rules concerning the Private Occupational Education Act of 1981.

## **Placement Assistance**

Solar Energy International (SEI) offers employment assistance to graduates, consisting of job lead referrals and job skills development. While providing resources to help you in your job search, we make no guarantee, expressed or implied, of future employment. Current law prohibits any school from guaranteeing job placement as an inducement to enroll students.

## **Attendance / Online Course Progress Requirements**

For SEI's in-person classes and hands-on lab sessions, students are expected to arrive on time for class with proper materials and stay for the full duration of each class day. Additionally, students must attend all class days required for any given course. Instructors will take daily attendance and keep record of the class attendance with SEI's Student Services Department. Missing class, excessive tardiness, or early departure constitute unsatisfactory attendance and the student will be dropped from the class. This will result in the student not earning the record of completion for that class and forfeiting any documented training hours for that class. If a student does not successfully complete a course they will need to register and retake the course. All tuition fees apply.

In the SEI Online Campus, course participation and acceptable progress is determined by attempting all quizzes and earning a cumulative average score of 70% or higher in the course. Not doing so, will result in the student not earning a record of completion and forfeiting any documented training hours for the course.

Students who are unable to continue classes for medical reasons or severe personal problems will be required to take a leave of absence until they are able to return to class. Proper documentation will be required and a formal request for withdrawal will be required to substantiate a student's withdrawal request.

### **SEI Instructional Design and Assessment Process and Policies**

For over two decades, SEI has been a leader in providing world class training and educational offerings based on stringent and peer-reviewed curriculum and instructional design processes. This continuous improvement process ensures our curriculum and instructional offerings are in alignment with industry needs and establishes a rigorous and relevant learning opportunity for all of our students.

### **Authentic Assessments**

The assessments offered through our training program, both online or in-person, evaluate our students as they work through the learning material in the online course format or in the case of in-person courses and hands-on labs, perform common technical tasks found in the renewable energy sector. These assessments demonstrate that they have mastered the essential knowledge and skills necessary to perform common tasks found in career fields in the renewable energy sector. All assessments are valid and reliable and aligned with industry needs. These assessments can come in the form of graded quizzes, exercises, and instructor monitored / evaluated skills mastered during hands-on lab sessions and in-person courses.

### **Assessment Framework**

The following are SEI's policies and procedures for assessment development, delivery, administration, scoring, scoring analysis, and review to ensure that students are meeting the stated learning outcomes. These assessments are required so we can evaluate student-learning outcomes using assessments that are measurable, objective, criterion referenced, and authentic.

### **Assessment Development**

The SEI Curriculum Team is made up of professionals currently working in the renewable energy sector and are also serving as SEI instructors in both SEI's in-person and online learning environments. This team performs the instructional design and assessment development functions throughout the entire SEI training program. Assessment questions are created based on all the learning objectives of each course and learning resources that are presented within the course. Additionally, all curriculum is developed based on industry peer-reviewed feedback as well as published job task analyses (JTAs) from industry recognized certifying entities like the North American Board of Certified Energy Practitioners (NABCEP).

### **Assessment Administration and Scoring - In-person / Hands-on Labs**

In the context of in-person and hands-on labs, students are assessed on daily classroom attendance, active class participation, completed homework, participation in tours, hands-on lab participation, completed quizzes and is signed off by the instructor of record and given a Pass or Fail status.

This Pass/Fail status is documented on a Student Progress Worksheet for in-person and hands-on lab courses. The results found on this Student Progress Worksheet is then passed on to the SEI Student Services Department to be placed into the student's official school record in the SEI Student Information System.

### **Assessment Administration and Scoring - SEI Online Campus**

In the case of graded assessments in an online course through SEI's Online Campus, the instructor of record or the automated Learning Management System grading system are tasked with scoring the assessments. These assessments are recorded in the online gradebook for online courses. Students' can view their grades within the online gradebook. These grades are harvested by the SEI Student Services Department at the end of each session and entered into the student's official school record in the SEI Student Information System.

In the SEI Online Campus, course participation and acceptable progress is determined by attempting all quizzes and earning a cumulative average score of 70% or higher in the course. Not doing so, will result in the student not earning a record of completion and forfeiting any documented training hours for the course. Below is the grading scale that is recorded based on the online course average at the end of the course:

90 – 100 = A	Excellent
80 – 89 = B	Above Average
70 – 79 = C	Average
60 – 69 = F	Failing/Unsatisfactory

### **Scoring Analysis and Review**

At the end of each course these scores are reviewed by the instructors of record who also review student feedback through the SEI end of course surveys. Feedback can come directly from a student at the time of the assessment or through an end of course survey. This feedback may indicate that there may be an assessment question(s) that is inaccurate or poorly worded. This feedback is confirmed by the instructor of record and placed in SEI's curriculum tracking documentation for the SEI Curriculum Team to make appropriate adjustments to the assessment questions. These changes are tracked and remedied through the SEI instructional design process and pushed out to all future courses.

### **Progress Policy**

Students must maintain a 70% grade average for online courses and a grade of "P/Pass" in all in-person courses to complete the SEI Solar Professionals Certificate Program. The student may be dropped from the program if acceptable progress is not satisfactory after 3 attempts to pass a course. Attempts are defined as earning a grade. When a student retakes a course the grade earned in the most recent attempt is used to calculate progress. Dropping of a student

from the SEI Solar Professionals Certificate Program shall be at the Vice President of Student Services' discretion. The Vice President of Student Services has final authority and shall notify the student of the final decision.

### **Academic Integrity**

As a student of Solar Energy International, individuals are expected to produce their own work, take their own quizzes, and complete their own assignments without any assistance. If it is determined that a student has allowed someone else to complete any of their course work, or access their course for any reason, this will be considered cheating and may result in a failing grade for the course.

### **Conduct Policy**

All students are expected to act maturely and are required to respect other students and faculty members. Possession of weapons, illegal drugs, and alcohol of any kind are not allowed at any time on school property. Any violation of school policies may result in permanent dismissal from school.

### **Dismissal**

Any student may be dismissed for violations of rules and regulations of the school, as set forth in school publications. A student also may be withdrawn from classes if he or she does not prepare sufficiently, neglects assignments, or makes unsatisfactory progress. The Vice President of Student Services, after consultation with all parties involved, makes the final decision.

The Vice President of Student Services may temporarily suspend students whose conduct is disruptive or unacceptable to the academic setting. After appropriate counseling, students who demonstrate a genuine desire to learn and conform to school standards of conduct, may be allowed to resume attendance. The Vice President of Student Services will review each case and decide upon re-admittance.

## **SEI Training Facilities and the SEI Online Campus**

### **SEI's Paonia, Colorado Training Facility**

SEI's main campus educational center is located at 39845 Mathews Lane Paonia, CO 81428. Over the past 20+ years, more than 40,000+ people from all 50 states and 66 countries have attended SEI's renewable energy courses. SEI's training facility is equipped to provide hands-on experiential learning and showcase the potential for renewable energy technologies, especially solar photovoltaics (PV) technologies. SEI's training facility offers students an unparalleled opportunity to practice what they've learned in the classroom.

As part of SEI's commitment to deliver code compliant, safety oriented, cutting edge curriculum and training opportunities to participants, SEI has continued to advance the hands-on training capabilities in PV. The PV training program explores the various system types (grid-direct, grid-tied with battery back-up, and stand-alone) and mounting techniques (roof mount, pole mount, and ground mount) common in the PV industry.

Participants in SEI's PV workshops work with instructors who have extensive field experience and are passionate about teaching, offering an unparalleled combination of hands-on knowledge and technical expertise. From detailed solar site analysis to system design and installation, SEI participants can experience many aspects of PV systems.

During SEI lab training, students will be exposed to typical outdoor working environments that may include intense sun exposure, heat, cold, wind, rain, snow, and high elevation. Both instructional staff and students are required to bring with them appropriate clothing, water bottles, sunglasses, etc. to ensure a comfortable and safe learning experience.

### **SEI's Online Campus**

In order to offer flexibility of learning from anywhere / anytime and allowing students to learn at their own pace with instructional support from industry experts, SEI has established the SEI Online Campus. This online learning platform offers the exact same curriculum that is offered in the in-person, non-lab, classroom sessions while offering a longer period of time for completion. These online courses are also taught by live instructors, many of whom also teach the in-person sessions. Graded activities and required forum participation helps ensure students are staying on task and absorbing the learning content. These online courses provide a convenient way to satisfy the prerequisite training requirements to attend SEI's hands-on labs.

### **Refund Policies**

Students not accepted to the school are entitled to all moneys paid. Students who cancel this contract by notifying the school within three (3) business days are entitled to a full refund of all tuition and fees paid. Students, who withdraw after three (3) business days, but before commencement of classes, are entitled to a full refund of all tuition and fees paid except the maximum cancellation charge of \$150.00 or 25% of the contract price, whichever is less.

In the case of students withdrawing after commencement of classes, the school will retain a cancellation charge plus a percentage of tuition and fees, which is based on the percentage of contact hours attended (if training is offered as distance education: "based on the percentage of no. of lessons completed")\*, as described in the table below. The refund is based on the official date of termination or formal documented withdrawal.

This cancellation policy applies whether you are canceling the course and asking for a refund, or canceling the course and rescheduling to a new course session date.

After a course cancellation and application of cancellation policy, any credit left on file not applied to rescheduling of training nor requested as refund to original payment method will expire after one year from original cancellation date.

In the event a class is canceled for a reason beyond SEI's control, SEI will work with the student to reschedule them into future online or in-person classes at no fee. Any remaining credit will be held for up to two years in this situation. If a student chooses not to reschedule for a future online or in-person class, and instead would like a tuition refund, then SEI will charge a cancellation charge of \$150.00 or 25% of the contract price, whichever is less.

### **SEI In-person Classes and Hands-on Labs Refund Table**

Student is entitled to upon withdrawal/termination	Refund
Within first 10% of program	90% less cancellation charge
After 10% but within first 25% of program	75% less cancellation charge
After 25% but within first 50% of program	50% less cancellation charge
After 50% but within first 75% of program	25% less cancellation charge
After 75% [if paid in full, cancellation charge is not applicable]	NO Refund

### **SEI Online Campus Refund Table**

Student is entitled to upon withdrawal/termination	Refund
Within first 10% of online course lessons	90% less cancellation charge
After 10% but within first 25% of online course lessons	75% less cancellation charge
After 25% but within first 50% of online course lessons	50% less cancellation charge
After 50% but within first 75% of online course lessons	25% less cancellation charge
After 75% of online course lessons	NO Refund

1. The student may cancel this contract at any time prior to midnight of the third business day after signing this contract.
2. All refunds will be made within 30 days from the date of termination. The official date of termination or withdrawal of a student shall be determined in the following manner:
  - a. The date on which the school receives verbal or written request with the student's intention to discontinue the training program; or
  - b. The date on which the student violates published school policy, which provides for termination.
  - c. Should a student fail to return from an excused leave of absence, the effective date of termination for a student on an extended leave of absence or a leave of absence is the earlier of the date the school determines the student is not returning or the day following the expected return date.
  - d. For online courses, the student's SEI Online Campus log files will be used to determine what lessons were accessed to calculate the amount of refund that will be given.
3. The student will receive a full refund of tuition and fees paid if the school discontinues a Program/Stand Alone course within a period of time a student could have reasonably completed it, except that this provision shall not apply in the event the school ceases operation.
4. The policy for granting credit for previous training shall not impact the refund policy.

**Student Grievance Procedure**

If a student has a grievance regarding any SEI policy or staff member they should contact, via email, SEI's Vice President of Student Services, Monique Turek at, [monique@solarenergy.org](mailto:monique@solarenergy.org).

Students should first discuss any instructional grievances directly with their instructor. If unable to come to a mutually acceptable conclusion, students should contact, via email, SEI's Vice President of Curriculum & Instruction, Wendy Knapp at [wendy@solarenergy.org](mailto:wendy@solarenergy.org).

Final decisions may be appealed to SEI's Executive Leadership Team at, [elt@solarenergy.org](mailto:elt@solarenergy.org).

Once a grievance is submitted via email to the Executive Leadership Team, within one week, they will investigate the grievance and arrange an appointment if necessary with the student for discussion. Every effort will be made to resolve any grievance in a timely manner.

**Student Complaints**

Attempting to resolve any issue with the School first is strongly encouraged. Complaints may be filed by a student or guardian at any time online with the Division of Private Occupational Schools (DPOS) within two years from the student's last date of attendance or at any time prior to the commencement of training at <http://higher.ed.colorado.gov/dpos>, 303-862-3001