



WORKFORCE DEVELOPMENT

Developing a skilled workforce for the
Solar, Energy Storage &
Renewable Energy Industry

SolarEnergy.Institute



COURSE CATALOG



CONTENTS



<i>Part I: Mission and Values</i>	<i>Page 3</i>
<i>Part II: About the Class</i>	<i>Pages 4-5</i>
<i>Part III: Certificates and Certifications</i>	<i>Pages 6-7</i>
<i>Part IV: Course Curriculum</i>	<i>Page 8-11</i>
◦ <i>Grid-Tied, Solar Electric</i>	
◦ <i>Battery-Based, Solar Electric</i>	
◦ <i>Pool Solar Installation</i>	
◦ <i>Operations & Continuing Education</i>	
<i>Part V: Career Outlook</i>	<i>Page 12</i>
<i>Part VII: Workforce Development</i>	<i>Page 13-14</i>
<i>Part VI: Partnerships and Support</i>	<i>Page 15-16</i>



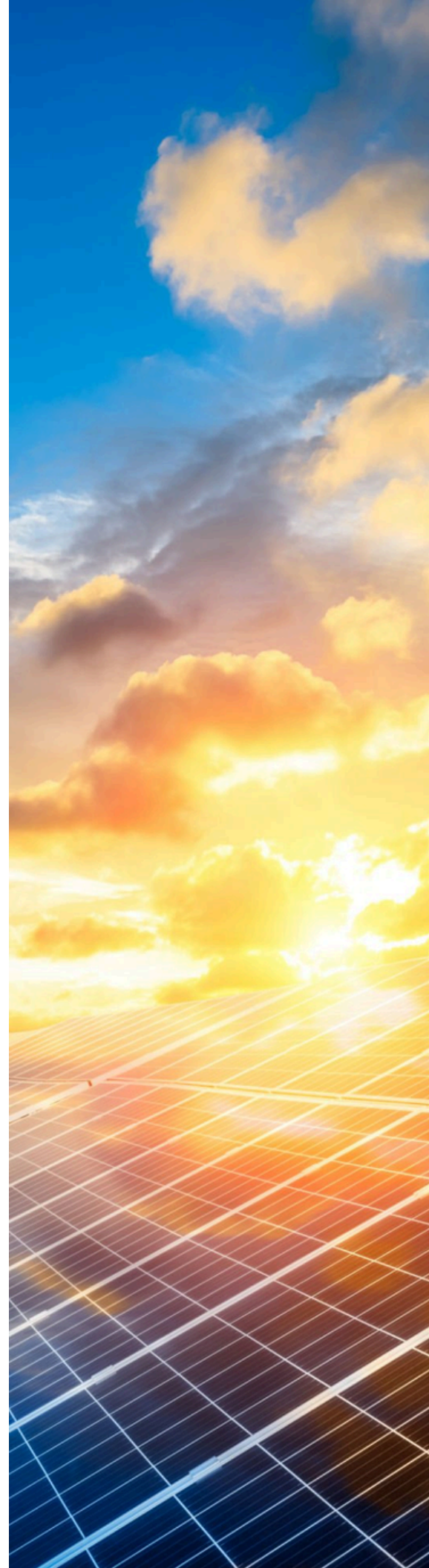
MISSION

At the Solar Energy Institute, we are committed to helping develop the renewable energy industry one professional at a time. It is our goal to create a diversified workforce of skilled professionals in various areas of the industry, including project management, leadership and all areas of installation, as well as programming and monitoring with the latest innovations.

It is our goal to create career opportunities that diversify the industry in gender, race and skillset. We are proud partners of the Department of Energy, Solar Ready Vets Program and work with multiple accredited trade schools and career placement programs.

VALUES

- **Empowerment Through Education:** Providing students with the skills and knowledge to succeed in the solar industry.
- **Certifications and Qualifications:** Offering industry-recognized credentials to enhance employability and career opportunities.
- **Sustainability and Innovation:** Promoting renewable energy solutions and staying at the forefront of industry advancements.
- **Diversity, Equity, and Inclusion:** Building a workforce that reflects the communities we serve and fostering inclusive opportunities.
- **Workforce Excellence:** Preparing individuals for long-term success through rigorous training and professional development.
- **Community Impact:** Supporting local economic growth and environmental progress, particularly in underserved areas.
- **Collaboration and Partnerships:** Working with industry leaders, educational institutions, and community organizations to expand our reach and impact.
- **Environmental Stewardship:** Committing to renewable energy solutions that protect the planet for future generations.





ABOUT THE CLASS



The condition of Lee County's continued economic success is the ability to educate for the future of work. This in turn, requires the strengthening of career and technical education (CTE) programs and pathways in view of developing a robust system of increasing work-based activities and partnerships. Among the list of current programs hosted by Fort Myers Technical College (FMTC), is excited to announce the new Solar Photovoltaic Installation and Maintenance Program in conjunction with our partners at The Solar Energy Institute. Solar Photovoltaic System Design, Installation and Maintenance is a 600-hour Energy training program that will prepare students to become Solar Photovoltaic Installers and other installation, maintenance and repair workers.

Students who take this program will learn about all the aspects of the Solar industry including:

- *Solar site surveys & design*
- *Hands on plumbing, electrical & battery storage labs*
- *In field installation training solar electric, hot water & solar pool systems*
- *Industry trends, manufacturing & federal tax credits*
- *Safety, tools & troubleshooting*
- *Graduate with NABCEP Associates Certification & OSHA certification.*

*Our Board of Directors consists of owners and operators from solar installation companies that are Certified Members of FlaSEIA (Florida Solar Energy Industry Association). The Board will be headed by **Rick Vaske** who is a Florida licensed solar contractor with over a decade of experience in the industry. Rick is also a Certified NABCEP exam practitioner, was the director of the solar program for the Charlotte County Technical College and will be participating as one of our training instructors. We are excited to have Rick's knowledge and experience.*

Open enrollment for the program begins October 2024 and will be accepting candidate applications at the Fort Myers Technical College Student Services Center or through our partnership with CareerSource where tuition assistance can be provided for qualified candidates.

Additional tuition assistance can be provided for interested Veterans through our partnership with the Department of Energy: Solar Ready Vets program. More details for this program are available on the Solar Energy Institute website.





ABOUT THE CLASS



This class is designed to equip participants with the essential skills and certifications needed to excel in the rapidly growing solar, energy storage, and renewable energy industries. Through a combination of hands-on training, classroom instruction, and real-world application, students will gain a comprehensive understanding of solar installation, energy storage systems, and sustainable energy technologies, all while adhering to industry safety standards. The curriculum also includes opportunities to acquire respected certifications from NABCEP (North American Board of Certified Energy Practitioners) and manufacturer-specific credentials from leading companies such as IronRidge, Enphase, and EG4. These certifications enhance technical expertise and provide a competitive edge in the green job market, preparing graduates for high-demand roles in this evolving industry. Whether you're starting a new career or expanding your skill set, this program offers the tools and opportunities to thrive in the clean energy economy.





CERTIFICATES AND CERTIFICATIONS



The NABCEP PV Installation Professional certification is a highly regarded credential in the solar industry, demonstrating advanced knowledge and expertise in photovoltaic (PV) system design, installation, and maintenance. It validates a professional's ability to meet industry standards, ensuring quality and safety in solar energy projects.

OSHA Certification demonstrates that an individual has been trained in workplace safety standards established by the Occupational Safety and Health Administration. This certification ensures knowledge of proper safety practices, hazard recognition, and compliance, which are critical for maintaining a safe and efficient work environment in industries like solar installation.



IronRidge certifications provide in-depth training on the design and installation of their solar mounting systems, ensuring proper integration and maximum durability. These certifications equip professionals with the skills to optimize solar panel performance while adhering to industry standards for safety and reliability.





CERTIFICATES AND CERTIFICATIONS



Enphase Certified Installers are trained and certified to install Enphase's advanced solar energy systems, including microinverters and energy management solutions. This certification ensures that installers have the expertise to maximize the performance, efficiency, and reliability of Enphase products, providing customers with high-quality solar solutions.

EG4 Preferred Installers are trained to install and maintain EG4's energy storage systems, ensuring optimal integration with solar power solutions. This certification equips professionals with the knowledge to deliver reliable, efficient energy storage solutions, enhancing system performance and providing long-term energy resilience for customers.





COURSE CATALOG: GRID-TIED, SOLAR ELECTRIC



This course provides a comprehensive overview of photovoltaic (PV) technology, teaching students the essential skills needed to design, install, and maintain solar electric systems. Key learning areas include the principles of solar energy, the operation of solar panels, and the technical aspects of converting solar power into usable electricity. Students will work with industry-standard tools to size systems, select appropriate components, and troubleshoot issues that may arise in installations.



Key Outcomes:

- Understand the different types of solar panel technologies and their applications.
- Design and size solar electric systems based on residential and commercial energy needs.
- Install and troubleshoot grid-tied and off-grid solar systems.
- Ensure compliance with local and national electrical codes (NEC) and safety standards.
- Conduct system performance tests and maintenance to ensure long-term efficiency.





COURSE CATALOG: BATTERY-BASED, SOLAR ELECTRIC



Battery storage is a key component of modern solar energy systems, and this course offers in-depth training on integrating battery back-up systems to provide consistent power during outages or low sunlight periods. Students will explore the different types of battery technologies available, including lithium-ion and lead-acid batteries, and learn how to manage system loads. The course also covers sizing battery systems, configuring charge controllers, and implementing monitoring systems for maximum performance and safety.



Key Outcomes:

- Understand battery technologies, including the differences between lithium-ion, lead-acid, and other types of batteries.
- Design and size battery back-up systems based on energy consumption and storage needs.
- Install and configure battery systems and associated charge controllers.
- Monitor battery system performance and optimize efficiency through software tools.
- Address and troubleshoot issues related to battery storage systems.





COURSE CATALOG: POOL SOLAR INSTALLATION



In this specialized course, students will learn to design and install solar pool heating systems that offer energy-efficient, sustainable solutions for pool owners. The curriculum covers the selection of solar collectors, site assessment techniques, and the integration of heating systems with existing pool equipment. Students will also focus on optimizing system performance to reduce energy costs for homeowners and businesses.



Key Outcomes:

- Understand the principles of solar thermal energy and how it applies to pool heating.
- Conduct site assessments to determine the ideal placement for solar collectors.
- Install and configure solar pool heating systems, ensuring proper integration with pool equipment.
- Optimize systems for maximum energy savings and system lifespan.
- Maintain solar pool heating systems for long-term efficiency and reliability.





COURSE CATALOG: OPERATIONS & CONTINUING EDUCATION



This course combines essential skills in system design, engineering plan interpretation, and project management to equip students with the expertise needed to successfully manage solar energy projects from start to finish. Students will learn how to assess client needs, design customized solar systems, and develop efficient system layouts that meet energy goals, technical specifications, and budget requirements. The curriculum also covers how to read and interpret construction documents, electrical schematics, and mechanical layouts, ensuring that students can accurately follow technical plans and execute projects with precision.

With hands-on experience in designing and managing solar energy systems, students will develop the skills necessary to lead projects, coordinate with teams, and apply industry standards to ensure the quality and success of installations. By the end of the course, students will be prepared to manage solar projects, from project planning to completion, in both residential and commercial settings.

While SEI provides a strong foundation for entering the solar energy workforce, the industry is continuously evolving, with new technologies and certifications emerging. Graduates are encouraged to pursue additional certifications and advanced training through industry organizations and professional development programs. Once inducted into the solar industry, professionals will have access to a wide range of continuing education opportunities, including advanced courses in system design, project management, and new solar technologies. These opportunities allow solar professionals to stay up-to-date with industry advancements, further specialize their skill set, and expand their career prospects within the renewable energy sector. By staying engaged with industry education, graduates will be well-positioned for long-term career growth and advancement in the dynamic solar energy field.

Key Outcomes:

- Master the design of solar systems, including site assessments and energy audits.
- Create accurate system layouts and understand how to read and apply technical plans.
- Ensure compliance with local building codes and industry standards.
- Lead solar projects and manage teams for effective, on-time completion.
- Develop proficiency in project management techniques for solar energy systems.





CAREER OUTLOOK



The solar energy industry is experiencing rapid growth, both nationally and in Florida, driven by the increasing demand for clean, renewable energy. The sector is expected to continue expanding at a significant pace, with job opportunities in solar installation, manufacturing, and maintenance increasing year over year. As solar technology advances and adoption spreads across residential, commercial, and utility markets, the demand for skilled professionals is expected to soar. This growth is reflected in the strong job projections for solar installers, with many roles experiencing much faster-than-average growth. Both the national and Florida solar markets are investing in workforce development programs to meet this demand, ensuring a steady supply of trained professionals to support the industry's expansion.

National Statistics:

- The solar industry grew by 167% from 2010 to 2020.
- Over 300,000 people are employed in the U.S. solar industry.
- The solar market is expected to grow 20% annually over the next decade.
- Demand for solar installers is expected to rise by 52% from 2020 to 2030.

Florida Statistics:

- Florida ranks as the third-largest solar market in the U.S.
- The state added over 1,000 MW of solar capacity in 2022.
- Florida's solar workforce has grown by 40% over the past five years.
- Solar jobs in Florida are projected to grow by 43% by 2030.



WORKFORCE DEVELOPMENT



The Solar Energy Institute offers a comprehensive training program designed to equip students with the essential skills and knowledge needed to meet the growing demands of the renewable energy industry. As the sector continues to expand, there is an increasing need for a skilled workforce capable of supporting advancements in solar technology, energy storage, and sustainability. The institute focuses on developing both technical expertise and industry awareness, providing students with the tools to build successful careers in this rapidly evolving field. Through specialized courses, hands-on training, and a commitment to diversity and inclusion, the program prepares students to tackle the challenges of the renewable energy industry and contributes to the growth of a diverse, highly skilled workforce ready to drive innovation and support a sustainable future.





WORKFORCE DEVELOPMENT STATISTICS



The proportion of women in the solar workforce increased from 27% in 2017 to 31% in 2022. Black people made up 9% of the solar workforce in 2022, considerably less than the proportion in the overall workforce (13%).

Eight percent of solar employees are veterans, well above the 5% in the overall workforce. Only 13% of the workforce is 55 and over, compared to 24% nationwide.

In 2022, 44% of solar industry employers said it was “very difficult” to find qualified applicants—the highest such percentage ever recorded in the Solar Jobs Census. Most new hires in 2022 required some previous work experience. However, less than half of all new hires required a bachelor’s degree, about a third required an associate’s degree, and almost none required a vocational or post-secondary certificate.

10.5% of solar workers are represented by a union, collective bargaining agreement, and/or project labor agreement. By comparison, 7% of the U.S. private sector workforce is represented by a union.

The Inflation Reduction Act will encourage the utility-scale solar industry to increase the use of Registered Apprenticeships, one of the best ways to hire and retain a skilled workforce.

- The 13th annual National Solar Jobs Census is a comprehensive review of employment and workforce development in the U.S. solar energy industry, nationwide and state by state. It is published by the Interstate Renewable Energy Council (IREC). This year’s report also includes information on jobs in the battery storage sector and other clean energy industries.
- The Solar Jobs Census is based on a rigorous survey administered by BW Research in the spring of 2023 for the U.S. Department of Energy’s United States Energy & Employment Report (USEER) 2023. The data in the Solar Jobs Census are as of December 2022.
- The Solar Jobs Census defines solar workers as those who spend 50% or more of their time on solar-related work.





PARTNERSHIPS AND SUPPORT



The Solar Energy Institute (SEI) has had the great opportunity and privilege of receiving exceptional support from a diverse group of partners who have been instrumental in the success and growth of our program. Our partners, including industry leaders, educational institutions, government agencies, and community organizations, have provided the resources, expertise, and networks necessary to elevate SEI's training programs to industry standards. Their commitment to workforce development in the solar industry has allowed us to offer cutting-edge training and certifications that equip individuals with the skills needed to excel in this rapidly growing field.

Through these collaborations, SEI has not only been able to expand its educational offerings but also build a sustainable pipeline of skilled professionals who are ready to meet the evolving demands of the renewable energy sector. Our partnerships have helped ensure that SEI's programs are responsive to the changing landscape of solar technology and workforce needs, while also fostering diversity and inclusion within the industry. The collective support from these valued partners has been vital in making SEI what it is today. We are deeply grateful for their contributions and look forward to continuing our collaboration to create more opportunities, promote environmental sustainability, and drive forward the clean energy transition. Together, we are building a future where solar energy thrives, and communities and individuals are empowered through meaningful careers in the renewable energy sector.

We thank all of our partners and support for making the Solar Energy Institute possible! If you are looking to become a partner please contact the lead instructor, Rick Vaske, rickvaske@gmail.com





PARTNERSHIPS AND SUPPORT



WORKFORCE DEVELOPMENT
Developing a skilled workforce for the
Solar, Energy Storage &
Renewable Energy Industry
SolarEnergyInstitute



INDUSTRY TRADE PARTNERS



DESIGN PARTNERS



GREENLANCER



Community & Workforce Partners

