Solar PV Installation Quality Assurance Training Course

Professional Development Training Course Outline

Category	Renewable Energy	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Solar PV Installation Quality Assurance Training Course is designed to build practical expertise in photovoltaic (PV) quality assurance, installation inspection, commissioning, testing, documentation, safety, reliability, and performance monitoring. The course aligns its learning approach with internationally recognized PV quality practices, including IEC TS 63049, which addresses quality assurance across PV installation, operation, and maintenance, and IEC 62446-1, which covers inspection, commissioning tests, and system documentation. Participants learn how to identify installation defects, verify workmanship, evaluate components, manage quality-control processes, and establish traceable QA/QC systems for residential, commercial, industrial, and utility-scale solar projects.

The course also emphasizes risk-based quality management, electrical safety, module and inverter quality, mounting systems, DC/AC installation, cable management, grounding and bonding, testing and commissioning, digital inspection records, performance verification, preventive maintenance, and continuous improvement. PV performance monitoring is addressed using concepts covered by IEC 61724-1, while on-site I-V characterization provides an important method for assessing PV array performance. Through practical exercises and case studies, learners develop the ability to move beyond basic installation checks toward data-driven quality assurance, defect prevention, lifecycle reliability, and bankable solar project performance.

Programme Curriculum

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5 days

Course Objectives

By the end of the course, participants will be able to:

1. Apply PV quality assurance and QA/QC frameworks throughout the solar project lifecycle.
2. Interpret relevant IEC standards, installation requirements, inspection criteria, and commissioning procedures.
3. Conduct systematic solar PV installation inspections using professional checklists and acceptance criteria.
4. Identify and document installation defects, non-conformities, workmanship issues, and quality risks.
5. Evaluate PV modules, inverters, mounting structures, cables, connectors, protection devices, and balance-of-system components.
6. Implement risk-based quality management and preventive quality-control measures.
7. Verify DC/AC electrical installation, grounding, bonding, cable routing, polarity, and protection systems.
8. Perform and interpret appropriate PV commissioning and electrical testing procedures.
9. Use I-V curve testing, performance monitoring, and inspection data to identify potential system-performance problems.
10. Develop effective quality documentation, inspection reports, punch lists, NCRs, and handover records.
11. Assess installation reliability, durability, safety, and long-term PV system performance.
12. Apply digital QA/QC, data-driven inspection, traceability, and continuous-improvement practices.
13. Establish a practical solar PV quality assurance program suitable for EPC, O&M, contractor, owner, or inspection environments.

Target Audience

1. Solar PV installers and technicians
2. QA/QC engineers and quality inspectors
3. Solar PV design and electrical engineers
4. EPC project managers and site supervisors
5. Operations and maintenance (O&M) professionals
6. Renewable-energy consultants and technical auditors
7. Solar project owners, developers, and asset managers

8. Energy professionals seeking specialization in PV quality and reliability

Course Modules

Module 1: Solar PV Quality Assurance Fundamentals

- QA/QC principles
- PV lifecycle quality.
- Standards framework
- Risk-based QA.
- **Case Study:** Review a commercial rooftop PV project where inadequate quality controls created installation defects and develop a corrective-action plan.

Module 2: PV Components and Materials Quality Control

- PV module quality
- Inverter quality
- Balance of system
- Material receiving inspection
- **Case Study:** Investigate a project experiencing early component failures and determine whether procurement, storage, or installation quality contributed to the problem.

Module 3: Site Preparation, Mounting and Mechanical Quality

- Site readiness
- Mounting-system inspection
- Module installation
- Environmental resilience
- **Case Study:** Analyze a rooftop PV installation with mounting and waterproofing defects and create a site-quality improvement plan.

Module 4: DC Electrical Installation Quality Assurance

- DC wiring
- Connectors
- Grounding and bonding
- Protection systems
- **Case Study:** Diagnose a PV array with inconsistent string performance by reviewing polarity, connector, cable, and string-testing records.

Module 5: AC Systems, Inverters and Electrical Safety

- AC installation
- Electrical safety
- Inverter commissioning
- Protection verification.
- **Case Study:** Review an inverter commissioning failure and identify the quality-control checkpoints that could have prevented it.

Module 6: Inspection, Testing and Commissioning

- Inspection protocols

- Electrical testing
- I-V characterization
- Commissioning documentation
- **Case Study:** Conduct a simulated commissioning review using test results, identify non-conformities, and determine whether the system is ready for acceptance.

Module 7: Performance Monitoring, Defect Detection and Reliability

- Performance analytics
- Monitoring systems
- Defect detection
- Reliability management
- **Case Study:** Compare expected and actual PV production data to identify a performance deviation and propose an investigation pathway.

Module 8: QA/QC Documentation, Auditing and Continuous Improvement

- QA/QC documentation
- Quality audits.
- Corrective actions
- Digital quality management.
- **Case Study:** Audit a completed solar PV project, identify recurring quality issues, and develop a corrective and preventive action (**CAPA**) program.

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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