

National Institute of Solar Energy
(An Autonomous Institute under Ministry of New and Renewable Energy) Gwal Pahari, Gurugram-Faridabad Road, Gurugram, Haryana – 122003

Date: 07-5-2026

Three Days Training Programme on Performance Evaluation of Solar PV Systems

Venue: Usha Hall, NISE, 19th Milestone, Institutional Area Gurugram_Faridabad Road, Gwal-Pahari, Gurugram

Day 1:				
Sr. No.	Timing	Module Name	Course Content	Remarks
1.1	10:00-10:30	Welcome/ NISE facility and Overview activities	<ul style="list-style-type: none"> • Introduction • Overview of NISE facility • Brief about proposed training program and activities 	
1.2	10:30-11:00	Renewable Energy Development in India & Industry Trends	<ul style="list-style-type: none"> • Overview of various Renewable Energy/ Potential of Renewable Energy /Industry Trends of RE /Key players in Market 	
1.3	11:00-13:00	Basic of Solar Radiation and measurements	<ul style="list-style-type: none"> • Basics of Solar Radiation (To include Solar angles, tilt angle, Climatic zones of India Solar spectrum distribution Relative humidity distribution, Calibration of radiometric sensors) 	
Lunch (13:00-14:00)				
1.4	14:00-16:00	Solar Photovoltaic basics	<ul style="list-style-type: none"> • Solar Photovoltaic (Working of latest Solar cell Technologies) • understanding I-V Curve, Efficiency, fill factor, the effect of temperature and Insolation, 	

1.5	16:00-17:30	Solar Photovoltaic Technology, inverter and other BOM of PV power plant	<ul style="list-style-type: none"> • Types of PV power plant, • Details of BOM, • Basic working of Solar PV, • Types of PV technology, • Inverter and other BOM. System Performance Parameters. 	
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Day 2:				
Sr. No	Timing	Module Name	Course Content	Remarks
2.1	10:00-11:30	Reliability and Standards related to Performance of PV module, inverter, BOM of PV power plant	<ul style="list-style-type: none"> • Degradation of Solar PV Modules, • Life Cycle of Panels Sampling, Standards as per QCO and BIS, IEC standards for solar PV power plant 	
2.2	11:30-13:00	PV module manufacturing and related standards	<ul style="list-style-type: none"> • Different types and construction of a PV module, • Overview of established manufacturing practices in industry, • Layout of state-of-the-art automated production lines, routine tests for quality check during manufacturing 	
Lunch (13:00-14:00)				
2.3	14:00-16:00	Safety at Site – for plant and personnel	<ul style="list-style-type: none"> • Understanding different safety risks and their mitigation, • Use of Suitable Tools and Tackles for the installation • Understanding the safety Protocol during installation testing and commissioning, Safety during Material Handling. 	
2.4	16:00 - 17:30	SPV Module Outdoor and Indoor Testing & Radiation Measurement	<ul style="list-style-type: none"> • Testing at lab PV module – I-V, IR Reference cell/Golden Module 	

Day: 3				
Sr. No.	Timing	Module Name	Course Content	Remarks
3.1	10:00-11:30	Mounting Structure/Earthing/ Lighting Arrestors, Protection/ Faults	<ul style="list-style-type: none"> • Understanding mounting structure, • different types of Earthing/ Lighting Arrestors - SPD, Rating , available in market, • different types of Protection, • different types of Faults 	
3.2	11:30-13:00	Performance monitoring and data analysis of PV power plant	<ul style="list-style-type: none"> • Checklist, Testing procedures, Equipment for performance monitoring of PV power plant, Standards for performance monitoring, • Data analysis of performance data, Hands on data analysis and optimizations. • IS/IEC 61724 	
Lunch (13:00-14:00)				
3.3	14:00-15:00	Performance parameters in a Solar PV power plant	<ul style="list-style-type: none"> • Real time case studies from the field 	
3.4	15:00-16:00	Field Visit @NISE	<ul style="list-style-type: none"> • 500 kW PV Plant, Hydrogen, Solar Cold storage, Bifacial PV plant 	
3.5	16:00-17:30	Assessment & feedback Valedictory and Certification		
