

Date: 10 & 11/08/2017

Venue: NISE, Gurugram

**2-Day Skill Development Program
On
Solar Water Pumping (Varun Mitra)**



About NISE:

National Institute of Solar Energy (NISE), an autonomous center of excellence of Ministry of New and Renewable Energy, Government of India, is conducting national skill development programs to meet the needs and upgrade the technical expertise of solar professionals.

Learning Objectives

- I. Solar Energy Fundamentals
- II. Brief understanding of solar water pump
- III. Sizing of solar water pump systems
- IV. Operation & Maintenance of Solar Water Pumping
- V. Case Study

Target Audience

Graduate Engineers with basic knowledge of Electrical Concepts; Solar Entrepreneurs; Public Sector Undertaking Officials; EPC contractors; MNRE channel partners; Senior Energy Department Officials of Govt. of India and Officers from State Nodal Agencies etc.

Training Fee per participant*

Rs. 5,000 plus GST 18%

* There are a total of 30 seats per batch on first come first serve basis. Lunch, Tea will be provided during the training programs. TA/DA would not be provided by NISE. However, Accommodation facility is available to limited participants on payment basis, therefore for accommodation please contact to Mr. Deepak Mathur (Consultant) Ph. 0124-2853048.



Day-1 (10/08/2017)				
Sl. No.	Session Title	Time	Session Description	Faculty
	Registration and Tea	09:30-10:00	Registration and Tea	
1	Welcome Introduction and overview of the workshop	10:00-10:30	Overview of the workshop and orientating the participants towards the workshop goals	
2	Solar Energy Fundamentals	10:30-11:30	Basics of solar energy ,fundamental of solar radiation, solar energy map latitude & longitude, direct and diffuse radiation ,sun movement (month wise shadow variation),solar geometry (tilt angle), shading effect concepts .	
3	Solar PV Cells, module, array, technology Types Solar PV Systems	11:30-12:30	Basics of PV modules and cells - How Solar Cells work - Types of Solar Cells - Cell Efficiency -Modules - Blocking diodes – By pass diodes - Data Sheet - Max. Power point - PV Array - I-V curve, solar PV module technology brief, Power & Energy calculation for a given area. Schematic diagrams for various configuration	
4	Brief understanding of solar water pump. Solar Water Pumping technologies, Overview and system viability	12:30-13:30	Need of solar water pump, Resources (solar radiation data/water table,), Application of SPV water pump system -SPV Direct current pump system -Regulated systems - SPV AC pump systems. - SPV DC pump systems. -Brief understanding of electric motor. -Overview of Charge controller Available option for replacing. conventional water pumping system, alternative methods ,	
LUNCH BREAK (13:30 – 14:30)				
5.	Power conditioning device and control	14:30-15:30	Variable frequency Device , DC drives, MPPT System Solar pump evaluation technique, selection of charge controller	
TEA BREAK (15:30 – 16:00)				
6.	Field visit and onsite demonstration	16:00-17:00	Field visit and onsite demonstration (Testing, Fault detection and Troubleshooting of the system), Site Evaluation (radiation and water availability), system analysis, motor and pump subsystem.	

DAY-2 (11/08/2017)

Sl. No.	Session Title	Time	Session Description	Faculty
1.	Sizing of solar water pump systems	10:- 11:00	Design consideration of various pump system, suction and discharge of the pump, static and dynamic head, storage and distribution, Types of pump, Selection of pump.	
2.	Economic benefits of solar water pumping system. MNRE guide lines and policies	11:00- 12:00	1) Cost appraisal methods, benefits to agriculture, cost benefit analysis 2) MNRE guide lines and policies	
Tea Break 12:00-12:30				
3.	On-site Handwork	12:30- 13:30	Installation of Solar water Pump System, Procurement and bill of material , Installation procedure, Commissioning checklist,	
LUNCH (13:30-14:30)				
4.	Distribution of Certificates	14:30- 15:30		
Tea Break 15:30-16:00				

Solar Water Pumping (VARUN)

Date:
Registration Form

Kindly provide the following details during registration-

Name of Delegate/Participant :
Name of the organization :
Designation :
Contact number :
Email Id :
Address :
NEFT / RTGS Number :
Payment Date/Fee :

Payment Details: (Kindly make your payment through RTGS/NEFT) in favor of:

The Bank Account details are as follows:

Account Holder Name: National Institute of Solar Energy
Account Type: Savings Bank
Bank Name: State Bank of India
Branch: 14, Centrum Plaza Sector 56 RO, (SBI Branch Code: 11443)
Account No: 33843408697
IFSC Code: SBIN0011443

The participants must clearly indicate send their bank transfer details (by e-mail) in advance to the Course Coordinator, then only, the participants could be allowed to attend the training programs.

Contact Information:

Registration forms can be sent through email (skill.nise@gmail.com) or through courier/speed post at the following address at least Four days before the start of training program-

Deputy Director General (Skill Development)
National Institute of Solar Energy (NISE)
Gurugram Faridabad Road, Gwalpahari, Gurugram-122003, Haryana

For any queries please contact between 11:00 am to 5:00 pm during weekdays:
Contact Number-0124 - 285 3032

-----XXX-----