Date: 24th – 28th SEPTEMBER 2018 **Venue: NISE, GURUGRAM**

19th, FIVE - DAY SKILL DEVELOPMENT PROGRAM ON SOLAR PV SYSTEM DESIGN USING "PVSYST & PVSOL" SOFTWARE WITH COST ECONOMIC AND POLICIES (NISE002/09/2018)

About NISE:

NISE is an autonomous institute under Ministry of New and Renewable Energy, Government of India established to facilitate the Research & Development, Testing, Certification, and Skill Development activities in the field of solar energy technologies. (www.nise.res.in)

Learning Objectives

1- The main objective of this programme is to understand an off- grid system, on- grid system and hybrid system.
2- Solar Power Plant design with the help of simulation software.
3- Simulation cover (Project Phase, orientation of modules, solar components, user's needs, near and Far shading analysis, different loss analysis, simulation result and discussion)
4- Different steps to execute the solar power plant
5- Different development phase in the solar plant installation.

Vision & Mission

1. The **vision** of this programme enables participants to "Design and Simulate SPV System".
2. The **mission** of this programme are to impart the knowledge and proper training and enable participants to become a solar professional.

Target Audience

Graduate Engineers with basic knowledge of Electronics, Mechanical, Electrical & Civil Engineering, Renewable Energy, Solar Energy; Solar Entrepreneurs; Scientists, Researchers, Engineering college faculty, MNRE channel partners; C.A., Senior Energy Department Officials of Govt. of India and Officers from State Nodal Agencies etc.

Day 1 Monday			
Timing	Module Name	Course Content	Faculty
10.30-11.00	Welcome / NISE facility and Overview activities/ Registration	NISE facility and Overview activities	Dr. Arun. K.Tripathi (DG-NISE) Er. S.K.Singh (ADVISOR) All (DDG- NISE)
11.00-11.15	Tea break		
11.16-12.30	Basic of Solar Radiation	• Explain the Solar radiation • Explain the type of Solar radiation technology • Explain the solar radiation Instruments and application	Mr. Birinchi Bora (SRS)
12.30-13.30	Renewable Energy Development in India	• Explain the concept of renewable energy • Explain the Future Growth of solar • Explain the world solar capacity and future development of solar energy	Dr. Arun K.Tripathi (DG- NISE) / Mr. Ramayan Singh (RS)
13.30-14.30	Lunch		
14.30-15.30	Basic of SPV Technology and Components	• Explain the basic of Solar Photovoltaic • Explain the main components in SPV • Explain the types of Solar Power Plants and Application	Dr. S.K. Sangal (Sr. consultant)
15.30-16.30	Need of Software in SPV system Design	• Explain the design tools in SPV • Explain the different types of SPV system • design software Explain the basic of PVSYST and PVSOL software	Mr. Yogesh Kumar Singh (SRS)
16.30-16.45	Tea Break		
16.45-17.30	Field visit at NISE	• Explain the identification of different • types of Solar Module Technology • Explain the real time working principle of Solar Power Plant • Explain the different types of outdoor measuring instruments	Mr. Birinchi Bora (SRS) / Mr. Yogesh Kumar Singh (SRS)

Day 2 Tuesday			
Timing	Module Name	Course Content	Faculty
10.00-11.30	PV System Concept	• Working of Solar PV System • Types of PV System (Grid / Off-grid) • Net Metering • Gross Metering	Guest Faculty
11.30-11.45	Tea break		
11.46-13.30	Types of Inverter & selection criteria	• Inverter Concept • Types of Inverter (Central Inverter/String Inverter/Micro Inverter) • Distributed MPPT Inverter	Guest Faculty
13.30-14.30	Lunch		
14.30-16.30	BOS and Mounting Structure	• Overview on selection criteria of BoS • Mounting Structure concept • Types of Mounting Structures (Fixed/Seasonal/Single Axis/Dual Axis)	Guest Faculty
16.30-16.45	Tea break		
16.45-17.30	PV system Design (DC system)	• Design Concept • String level design • Cabling Design (DC) • Practice Session	Guest Faculty

Day 3 Wednesday			
Timing	Module Name	Course Content	Faculty
10.00-11.30	Introduction Of "PVSYST software"	• Explain the different phase of PVSYST • software • Explain the different loss parameters • Explain the simulation Result	Mr. Yogesh Kumar Singh (SRS)
11.30-11.45	Tea break		
11.46-12.30	Designing with the help "PVSYST software"	• Design the 100 kW Solar Power Plant • Discussion on some technical parameters	Mr. Yogesh Kumar Singh (SRS)
12.30-13.30	Practice session 1 "PVSYST software"	• Design a 500 kWp power plant	Mr. Yogesh (SRS)/ Dr. Vikrant (SRS)/Mr. Birinchi (SRS)/ Mr. Gopal Jha (SRS)/ Mr. Ramayan (RS)
13.30-14.30	Lunch		
14.30-16.30	Practice Session 2 "PVSYST software"	• Design a 1MWp power plant with economic calculation	Mr. Yogesh (SRS)/ Dr. Vikrant (SRS)/Mr. Birinchi (SRS)/ Mr. Gopal Jha (SRS)/ Mr. Ramayan (RS)
16.30-16.45	Tea Break		
16.45-17.30	SPIN AND ARUN APP	• Explain the Basic of ARUN app • Explain the Basic of SPIN • Explain the different Solar Policy	Mr. Yogesh Kumar Singh (SRS)

Day 4 Thursday			
Timing	Module Name	Course Content	Faculty
10.00-11.30	Shading analysis	• Requirement of Shading analysis • How to analyze shadow free area • Practice Session	Guest Faculty
11.30-11.45	Tea break		
11.16-13.30	Shading analysis using "PVSYST software"	• Overview of PVSyst Shading • Creating a 3D model on PVSyst • Shading analysis • Practice session	Guest Faculty
13.30-14.30	Lunch		
14.30-15.30	Performance evaluation of PV system	• How to analyze performance of a Solar PV System • Calculating PR & CUF • CUF Vs PR	Guest Faculty
15.30-16.30	Testing and Standards of PV system	• Overview of relevant standards for Solar PV System • Testing requirements	Guest Faculty
16.30-16.45	Tea Break		
16.45-17.30	Operation and Maintenance guideline	• Overview of Solar PV System O&M • Requirements • Practical Cases Studies	Guest Faculty

Day 5 Friday			
Timing	Module Name	Course Content	Faculty
10.00-11.30	Introduction Of "PVSOL software" "	• Explain the different phase of PVSOL • software • Explain the different loss parameters • Explain the simulation Result	Mr. Yogesh Kumar Singh (SRS)
11.30-11.45	Tea break		
11.16-12.30	Designing with the help "PVSOL software""	• Design the 100 kW Solar Power Plant • Discussion on some technical parameters	Mr. Yogesh Kumar Singh (SRS)
12.30-13.30	Practice session	• Design a 500 kWp power plant	Mr. Yogesh (SRS)/ Dr. Vikrant (SRS)/Mr. Birinchi (SRS)/ Mr. Gopal Jha (SRS)/ Mr. Ramayan (RS)
13.30-14.30	Lunch		
14.30-16.30	3D Analysis with PVSOL	• Design a 1MWp power plant with economic calculation	Mr. Yogesh (SRS)/ Dr. Vikrant (SRS)/Mr. Birinchi (SRS)/ Mr. Gopal Jha (SRS)/ Mr. Ramayan (RS)
16.30-16.45	Tea Break		
16.45-17.30	3D Analysis with PVSOL		
17.30-18.00		Vote of thanks and certificate distribution	Dr. Arun. K.Tripathi (DG-NISE)

NOTE- This Training Programme cover only Hands on experience in the system design software for the participants. NISE does not provide any copy of software.

NOTE- Required Hardware
Participants should bring a laptop that runs under window and with the latest version of PVSYST and PVSOL installed

Course Fee:

Training Fee per participant	**Rs 25,000 plus GST @ 18 % (Rs 29,500/-)** in favor of "National Institute of Solar Energy –Capacity Building " Gurugram
Total	**Rs 25,000 plus GST @ 18 % (Rs 29,500/-)**
Fees Includes	Access all the lectures, certification, Tea and lunch will be provided
NOTE	**NO FEE RELAXATION**
Accommodation	Accommodation will be provided as per availability. It does not include in course Fees. Accommodation charges **Rs 600/Person/Night**. (Bank details are same and contact person -Mr. Deepak Mathur (Consultant) 0124-2853048 (training.nise@gmail.com)
TA/DA	TA /DA would not be provided by NISE.

How to Apply?

Participants may kindly make the Payment of **Rs. 25,000 plus GST @ 18 % (Rs 29,500/-)** through RTGS/NEFT/Cheque/Demand Draft (DD) only, in favor of:

Account details are as follows:

ACCOUNT HOLDER NAME: NATIONAL INSTITUTE OF SOLAR ENERGY (NISE)
ACCOUNT TYPE: CURRENT ACCOUNT
BANK NAME: STATE BANK OF INDIA, DLF QUTAB ENCLAVE, SHOP NO.: 109-110 QUTUB PLAZA, SHOPING C, GURGAON HARYANA,
(SBI BRANCH CODE: 6604)
ACCOUNT NO. 37266665652
IFSC CODE: SBIN0006604

Submit your registration form (Attached at "Annexure A"- Page No. 7) and payment detail form (Attached at "Annexure B"- Page No. 8) through email **(nisespvdesign@gmail.com)** or through courier/speed post at the following address by 20/09/2018.

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

Note: The participants must clearly indicate and send their bank transfer details (by e-mail) in advance to the Program Director by 20/09/2018, then only, the participants could be allowed to attend the training programs.

Number of Seats:

No. of Seats	**Selection criteria**
20	**First come First serve basis**

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DATE 24th – 28th SEPTEMBER 2018

(NISE 002/09/2018)

REGISTRATION FORM

Kindly provide the following details during registration- (**IN CAPITAL LATTER ONLY**)

PARTICIPANT DETAILS

Affix the new Passport photograph (Not older than 3 months)

Name of Delegate/Participant :

Designation :

Address of Delegate/Participant :

(District/State/Pincode) :

Signature of participant

Email-ID :

Contact Number :

ORGANIZATION DETAILS

Name of the organization :

Address of organization :

Contact number :

Email Id :

GSTN number of the Organization:

(If Invoice /Receipt required in the name of organization)

Accommodation Required (On Payment Basis): **Yes/No**

Amount Transferred ***Rs 29,500***

NEFT / IMPS Number :

Date on NEFT / IMPS :

Bank Name & Location :

Payment Details Form

Program Details
Program Name : *19th , FIVE -DAY SKILL DEVELOPMENT PROGRAM ON SOLAR PV SYSTEM DESIGN USING "PVSYST & PVSOL" SOFTWARE WITH COST ECONOMIC AND POLICIES*
Program Date : *24th – 28th SEPTEMBER 2018J*
Lead Program Director: *Mr. YOGESH KUMAR SINGH (SRS)*
Participant Details
FOR INDIVIDUAL
Name
Address (District/State/Pin code)
Mobile Number
Email ID
PAN
FOR CORPORATE/ORGANISATION/INSTITUTION
Registered Name of concern/organization/institution
Registered Office Address
Address Line 1
District
State
Pin
Office Contact No.
Office Email
PAN
GST Registration Type (Composition, Consumer, Registered, Unregistered)
GST No.
State & State Code as per GST Registration
Whether SEZ/Government Entity/Deemed Export, If Yes, please specify
Participant Name
Participant Contact No.
Participant Email ID
PAYMENT DETAILS
Amount
NEFT/RTGS/Cheque/DD
Transaction reference No.
Transaction Date
Bank with Branch Code

Note - All Fields are Mandatory.

Certified that the information provided is correct & accurate to the best of my knowledge & belief.

Name:-

Signature with Date

Note: If you require invoice against your organization it is mandatory to mention GSTN number of your organization. Otherwise your invoice will be generated as an individual

NATIONAL INSTITUTE OF SOLAR ENERGY

(An Autonomous Institute under Ministry of New and Renewable Energy)

FORMAT FOR SUBMITTING APPLICATION FOR ACCOMMODATION IN THE GUEST HOUSE

Affix the new Passport photograph (Not older than 3 months)

1- NAME:

2- FATHER'S NAME:

3- ID NO (PAN CARD/ DL/ ADHAR/ OFFICE ID/ PASSPORT):

4- POSTAL ADDRESS:

CORRESPONDENCE ADDRESS:

PERMANENT ADDRESS:

5- CONTACT NO:

6- EMAIL ID:

7- PROFESSION:

8- REASON:

9- DURATION:

NAME AND SIGNATURE OF CANDIDATE

RECOMMENDATION OF SUPERVISOR OFFICER

GUEST HOUSE IN-CHARGE

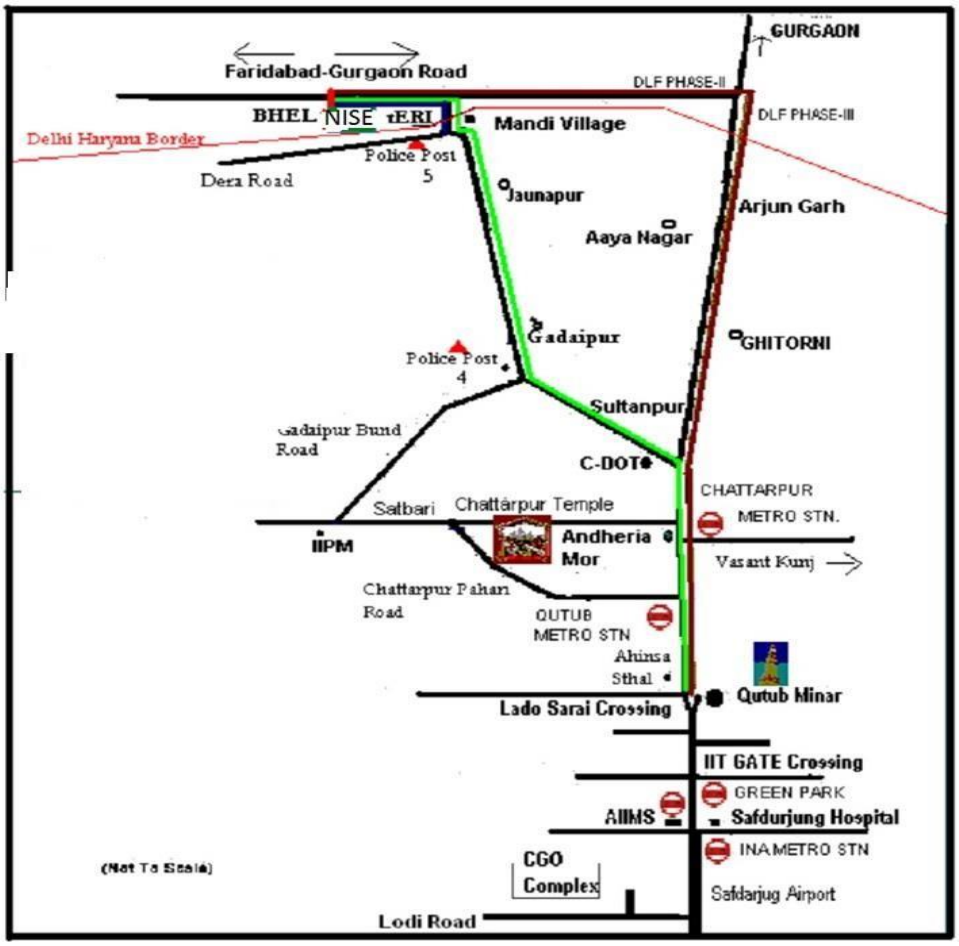
NOTE- ALL ARE REQUESTED TO DEPOSIT GUEST HOUSE CHARGES IN ADVANCE AT TIME OF OCCUPYING ROOM IN GUEST HOUSE.

For Guest House accommodation contact the following person

1- Mr. Deepak Mathur (Guest House Supervisor) 0124-2853048 training.nise@gmail.com

2- Mr. Daleep Kumar Ji (Guest House Caretaker) +91-8130778897

Route Map for NISE



How to Reach NISE

NISE is located in a 200 acres campus on Gurgaon-Faridabad Highway. It is approx. 10 KM from Guru Dronacharya Metro or Sikanderpur Metro. Radio Taxies, Ola cabs and Autos are available from these Metros to NISE and vice versa. When you are coming from Gurgaon to NISE, NISE is located on the left side of the Highway.

It is just on the Highway. If you are coming from Delhi by Car on Mehrauli – Gurgaon Road, after crossing Arjan Garh Metro and crossing Haryana Border take a left turn towards Faridabad at Le Meridien Hotel or at Metro Pillar No. P- 14. From this point NISE is located approx. at 10 km distance.

If you are planning to come from Faridabad side, NISE is located just 4 km after crossing toll gate on Faridabad-Gurgaon Highway. You would find NISE on the right side of the High Way.

For any queries please contact between 10:00 am to 18:00 pm during weekdays:	
Mr. Yogesh Kumar Singh	Senior Research Scientist (Lead Program Director) **nisespvdesign@gmail.com / spvdesign@nise.res.in (+91-8287990999)**
For Accommodation :	Mr. Deepak Mathur-Consultant (0124-2853048) training.nise@gmail.com Mr. Dileep Kumar Ji (Guest House Caretaker) +91-8130778897
For Payment/Accounts :	Mr. Jyoti Praksh-Consultant (0124 – 2853004) : jyoti.nise@gmail.com Mr Bhupesh Handa –Consultant (0124- 2853033): nise.mnre@gmail.com

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