

Sh. L.N. Hindu College, Rohtak

Affiliated to M.D.University, Rohtak

A Post Graduate Co-Educational College, Bhiwani Road, Rohtak

Accredited by NAAC with 'B' (2.74) Grade

Certification course in Solar Panel Installation

Beneficiaries: B.Sc. Students

Course Duration: 40 hours

Theory: 30 Hours

Practical: 10 Hours

Objectives:

With the exponential growth in Renewable sector, especially the Solar field, this course aims to give a better understanding and hands-on practice in different streams of solar energy including solar photo-voltaic technology, types of solar cell, working of solar panel system and procedure of its installation. This course also aims to develop solar vocational capability, promote livelihood, put new skills into practice and to give the students a pathway towards becoming a successful professional and an entrepreneur.

Learning Outcomes:

At the end of the course the students will be able to learn/understand the following:

- Different types of solar cells
- Components of solar panel system
- How to demonstrate safe working practices
- How to give energy efficiency and energy management advice to clients
- Understand features, configuration and application of solar panel system
- Understand steps required for solar panel installation
- Able to identify tools required for solar panel installation and their proper usage

P. S. Choudhary

Coordinator, IQAC

Sh. L.N. Hindu College, Rohtak



Syllabus

External Marks: 60

Internal Marks: 40

Time: 3 hours

Note: Examiner will be required to set 9 questions in all Question number 1 will be compulsory and consist of 6 parts (short answer type questions) covering the entire syllabus and will carry 12 marks. In addition to the compulsory question there will be 3 units I.e. Unit I to unit III. Examiner will set at least two questions from each unit of the syllabus and each question will carry 12 marks. Student will be required to attempt five questions in all.

UNIT-I

- Introduction to solar energy
- Brief history of solar cells
- Semiconductors (doping, band theory)
- Characteristics of P-N junction
- Photo-voltaic effect
- Classification of the solar cells on the basis of generations (Gen I, II and III), Structure and Materials.
- Silicon based solar cells, their conductivity and its measurement.

UNIT -II

- Components of solar panel system (brief description)
- Principle, construction and working of solar cell and solar panel system
- Role of climatic conditions on working of solar cell
- Determination of output of solar panel
- Efficiency of solar panel
- Size requirement of PV system

UNIT-III

- Assessing site conditions and installation requirements
- Procedure for installation of solar panel
- Safety equipments
- Monitoring equipments
- Procedure for cleaning of solar panels
- Manufacturing cost and its advantages over traditional electricity
- Applications of solar panels

Pshu Chhabra.

Coordinator, IQAC

Sh. L.N. Hindu College, Rohtak




Practical Session: 10 Hrs.

- Determination of angle and direction for solar panel installation.
- Assembling of solar panels.
- Electrical wiring.
- Connection between solar panel and solar inverter.
- Connection between solar inverter and solar battery.
- Connection between solar inverter and grid
- Starting of solar inverter through solar panel and grid.
- Earthing for solar panel system

Suggested Readings:

- Dr R. Suresh Kumar , Fundamentals of solar energy , Educreation publishing, 2019
- Sunil Deambi, From sunlight to Electricity , Energy resource Institute TREI, 2015
- A.S Kapoor , A practical guide for total engineering of MW capacity solar PV power project , White Falcon self publishing platform , 2015
- Chetan Singh Solanki , Solar photovoltaics fundamentals Technologies and applications , PHI learning
- Chetan Singh Solanki , Solar photovoltaic technology and system , PHI learning

Note: Latest and additional good books may be suggested and added from time to time.


Coordinator, IQAC
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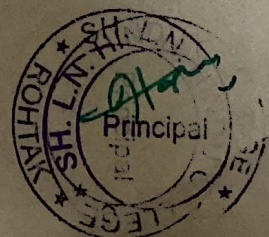
Registration List for the Session 2019-20

of Course Solar Panel Installation

Course Coordinator Mrs. Riya

Sr no	Name of Student	Class	Roll No	Signature
1.	Grantam	BSC II	3229	Grantam
2.	Rajneesh	BSC II	3217	Rajneesh
3.	Bhawna	BSC I	5401	Bhawna
4.	Lovleen	BSC I	5407	Lovleen
5.	Ridhi	BSC I	5424	Ridhi
6.	Pooja goel	BSC I	5410	Pooja
7.	Muskat	BSC I	5438	Muskat
8.	Paras	BSC II	3222	Paras
9.	Khushboo	BSC I	5416	Khushboo
10.	Nidhi	BSC I	5431	Nidhi
11.	Shreya	BSC I	5434	Shreya
12.	Alokesh	BSC I	5415	Alokesh
13.	Jayati	BSC I	5423	Jayati
14.	Priyanka Arora	BSC II	3218	Priyanka
15.	Pikki	BSC II	3223	Pikki
16.	Nitesh kumar	BSC I	5439	Nitesh Kumar
17.	Nandita	BSC II	3209	Nandita
18.	Samridhi	BSC II	3215	Samridhi
19.	Miss Kajal	BSC II	3233	Kajal
20.	Yogita	BSC I	5417	Yogita
21.	Sumit ghlawat	BSC I	5414	Sumit
22.	Manoj	BSC I	5425	Manoj
23.	Shital	BSC I	5418	Shital
24.	Tushar sharma	BSC II	3207	Tushar
25.	Parveen	BSC I	5419	Parveen
26.	Tehani	BSC II	3208	Tehani
27.	Sweety	BSC I	5430	Sweety
28.	Neha	BSC I	5408	Neha
29.	Jyoti	BSC II	3219	Jyoti
30.	Shivani	BSC I	5441	Shivani
31.	Deepak Rai	BSC I	5409	Deepak
32.	Sneha	BSC II	3216	Sneha
33.	Deepika	BSC II	3225	Deepika
34.	Aarti	BSC III	3206	Aarti

Riya
 Coordinator, IQAC
 Sh. L.N. Hindu College, Rohtak



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Award list (Including Internal Assessment & Final Theory Examination) with Grades of Successful Students Regarding Online Certification Course in Solar Panel Installation.

Course Coordinator: Mrs. Riya Sharma

Sr. No.	Full Name	Class	Theory exam (M.M 60)	Internal Assessment (M.M 40)	Total Marks (M.M 100)	Grade
1	Nitesh Kumar	B.Sc. 1st Year	44	36	80	A
2	Arti	B.Sc. 2nd year	54	40	94	A
3	Kajal Rathi	B.Sc. 2nd year	47	38	85	A
4	Shital	B.Sc. 1 year	47	38	85	A
5	Paras	B.Sc. 2nd year	38	36	74	B
6	Pinki	B.Sc. 2nd Year	50	36	86	A
7	Priyanka Arora	B.sc 2nd	50	37	87	A
8	Nandita	B.Sc. 2ndyear	47	38	85	A
9	Nidhi	B.Sc. 1st	52	38	90	A
10	Ishani	B.sc 2nd year	46	39	85	A
11	Shreya	Bsc1st year	58	39	97	A
12	Samridhi	Bsc2nd year	56	38	94	A
13	Gautam	Bsc2nd	52	38	90	A
14	Sweety	B.sc 1st	50	36	86	A
15	Bhawana	B.sc 1st year	58	40	98	A
16	Pooja Goel	B.sc 1st	54	39	93	A

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Riya



17	Deepak Rai	B.Sc.- 1 st year	46	38	84	A
18	Loveleen	B.sc 1st year	56	40	96	A
19	Ridhi Bhatia	B.Sc. 1st	56	38	94	A
20	Neha	B.sc 1st	47	38	85	A
21	Rajneesh	Bsc2nd	52	39	91	A
22	Muskaan	Bsc1st	52	38	90	A
23	Sneha	B.Sc. 2nd	50	39	89	A
24	Moksh	BSc (1st)	54	38	92	A
25	Khushboo	B.Sc. 1st	54	37	91	A
26	Jayati	B.Sc. 1st	56	39	95	A
27	Yogita	B.Sc. 1	56	38	94	A
28	Tushar Sharma	B.sc 2nd year	38	35	73	B

Riya
 Course Coordinator
 Mrs. Riya Sharma
 Assistant Prof. in Physics

Sashi Chhabra
 Coordinator, IQAC
 Sh. L.N. Hindu College, Rohtak

