

# **POORNIMA INSTITUTE OF ENGINEERING AND TECHNOLOGY**



## **Workshop Report**

This report presents a summary of the feedback received from participants at the workshop,

### **About the participants:**

**Date: 03-02-2019 to 04-02-2019**

**Venue: Electrical Engineering Department**

Number of participants: 52

Number of feedback forms received: 52

**Solar System Content: -(2 Days)**

### **Presentation & Hardware Demonstration**

- **Introduction Of Solar Energy**
- **Components Of Solar System**
- **Installation Of Solar System**
- **Application Of Solar System**
- **Practical session: -**
- **Solar mobile charger**
- **Series/Parallel connection of solar panels**
- **Presentation & Hardware Demonstration**

- **Solar component technical specification**
- **Government Policies Of Solar**
- **Future Scope & Jobs in solar field**
- **Solar Projects in India**
- **Installation of rooftop solar system**

### **Trainer profile**



**Lokesh Tiwari**, An engineer from electronics and communication engineering stream. The young and dynamic personality has been working upon automation system and its applications from his graduations, whose basic aim is to spread out his technical capabilities in India educational system and the extent of his success in this field can be proved from his achievements only.

#### **Achievements-:**

Started his career with Reliance Communications as a BSS Engineer and served Reliance Communications for 2 years but as his area of interest is in Research arena which made him to join Industrial Automation field. Afterwards to work in a company which matches with his area of interest he joined Vision World Tech Pvt. Ltd, Jaipur as an Automation Engineer. Presently he is working as a Sr. Automation Engineer at Vision World Tech Pvt. Ltd. Jaipur. Recently he has completed his M.Tech in Automation & Instrumentation Control from Poonima University, Jaipur.

### **Introduction Of Solar Energy**



**Solar energy** radiant light and heat from the sun, has been harnessed by humans since ancient times using a range of ever-evolving technologies. Solar energy technologies include solar heating, solar photovoltaics, solar thermal electricity and solar architecture, which can make considerable contributions to solving some of the most urgent problems the world now faces. Solar technologies are broadly characterized as either passive solar or active solar depending on the way they capture, convert and distribute solar energy. Active solar techniques include the use of photovoltaic panels and solar thermal collectors to harness the energy. Passive solar techniques include orienting a building to the Sun, selecting materials with favorable thermal mass or light dispersing properties, and designing spaces that naturally circulate air.

### Solar component technical specification

1. Outline View:

Outline Dimensions	
L	70±0.2mm
W	65±0.2mm
H	3.2±0.3mm

2. Technical characteristics  
(STC Standard Testing Condition: 1000W/M<sup>2</sup> AM1.5, 25°C.)

Description of Goods	Technical Spec.
Open Circuit Voltage(Voc)	4.6V ±8%
Short Circuit Current (Isc)	105mA ±8%
Maximum Power Voltage(Vmp)	4.0V ±8%
Maximum Power Current(Imp)	100.0mA ±8%
Maximum Power(Ppm)	0.4W ±8%

### Conclusion

- Innovative technology which can be applied either on top of any existing module or integrated into new modules during assembly. Next steps:

- Test reliability of the modules.
- Extent the concept to develop a color palette with the possibility to choose the desired color (PV module customization).
- Display of information on top of PV modules (logos, images)



**POORNIMA INSTITUTE OF ENGINEERING AND TECHNOLOGY,JAIPUR**

**QUIZE COMPITION**  
**TOPICE: SOLAR ENERGY**

**STUDENT NAME:** .....

**DEPARTMENT:**

.....

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>11</b>	<b>12</b>	<b>13</b>	<b>14</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>	<b>19</b>	<b>20</b>
<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>
<b>31</b>	<b>32</b>								

1. The solar or photo voltaic cell converts:

- a) Chemical energy to electrical energy   b) Solar radiation into electrical energy   c) Solar radiation into thermal energy   d) Thermal energy into electrical energy

2. Solar cells are made of:

- a) Aluminium   b) Germanium   c) Silicon   d) Cadmium

3. A module is a:

- a) Series-arrangement of solar cells   b) Parallel arrangement of solar cells   c) Series-parallel arrangement of solar cells   d) None of the above

4. The efficiency of solar cells is about:

- a) 25%   b) 15%   c) 40%   d) 60%

5. The voltage of solar cells is:

- a) 0.5 to 1 V   b) 1 to 2 V   c) 2 to 3 V   d) 4 to 5 V

6. The output of solar cells is of the order of:

- a) 0.5 watts   b) 1.0 watts   c) 5.0 watts   d) 10 watts

7. Sun tracking system is required in the case of:

- a) Cylindrical and parabolic and paraboloid   b) Flat plate collector   c) Both (a) and (b)  
d) None of the above



8. Which of the following area is preferred for solar power plants:

- a) Coastal areas      b) Hot arid zones      c) Mountain tops      d) High rainfall zones

9. Most of the solar radiation received on the earth surface is within the range of:

- a) 0.25 to 0.4 micron      b) 0.4 to 0.8 microns      c) 0.6 to 0.95 microns      d) 0.1 to 0.25 microns

10. The energy radiated by the sun in bright sunny day is about:

- a)  $2.5 \text{ kW/m}^2$       b)  $1.0 \text{ kW/m}^2$       c)  $500 \text{ W/m}^2$       d)  $200 \text{ W/m}^2$

**Q11. A module in a solar panel refers to**

- a. Series arrangement of solar cells.      b. Parallel arrangement of solar cells.  
c. Series and parallel arrangement of solar cells.      d. None of the above.

**Q12. The efficiency of the solar cell is about**

- a. 25 %      b. 15 %      c. 40 %      d. 60 %

**Q13. For satellites the source of energy is**

- a. Solar cell      b. Fuel cells      c. Edison cells      d. Cryogenic storage

**Q14. In a fuel cell cathode is of**

- a. Oxygen      b. Ammonia      c. Hydrogen      d. Carbon monoxide

**Q15. What is the maximum possible output of a solar array?**

- a.  $300 \text{ W/m}^2$       b.  $100 \text{ W/m}^2$       c.  $250 \text{ W/m}^2$       d.  $500 \text{ W/m}^2$

**Q16. The current density of a photo voltaic cell ranges from**

- a.  $10 - 20 \text{ mA/cm}^2$       b.  $40 - 50 \text{ mA/cm}^2$       c.  $20 - 40 \text{ mA/cm}^2$       d.  $60 - 100 \text{ mA/cm}^2$

**Q17. Reflecting mirrors used for exploiting solar energy are called**

- (A) diffusers      (B) ponds      (C) heliostats      (D) mantle.

**Q18. Which of the following area is preferred for solar thermal electric plants ?**

- (A) mountain tops      (B) hot arid zones      (C) coastal areas      (D) high rainfall zones.

**Q.19. In solar thermal conversion systems the solar heat is transferred to**

- (A) water-steam      (B) liquid metals      (C) molten salts      (D) any of the above.

Q20. Geothermal energy is

- (A) a renewable energy resource (B) alternative energy source (C) inexhaustible energy source  
(D) any of the above.

Q21 Fossils fuels are rich in carbon and

- A. nitrogen B. hydrogen C nitrogen D. oxygen

Q22. Thousands of mirrors or curved metals are used to focus solar energy on to small point to make it very hot happens in

- A solar cells B solar heater C solar furnace D solar battery

Q23. Wind is beneficial resource as it doesn't cause pollution and

- A Free B never stop C steady D costly

Q24. Hot water or steams carrying geothermal energy often comes up to surface in countries?..

- A New Zealand B Ice land C both a and b D Pakistan

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**Attendance sheet for solar Workshop**

S.no .	Name of Student	Regustration No.	3/2/2018(Mornin g)	3/2/2018(Evenin g)	4/2/2018(Mornin g)	4/2/2018 (Evening )
1	Himanshu	PIET15EE014	Y	Y	Y	Y
2	Hitesh Kumar	PIET15EE015	Y	Y	Y	Y
3	Mayank Laxkar	PIET15EE024	Y	Y	Y	Y
4	Vipul sharma	PIET15EE058	Y	Y	Y	Y
5	Yashansh Vijay	PIET15EE061	Y	Y	Y	Y
6	Sachin Goyal	PIET15EE046	Y	Y	Y	Y
7	Lokesh Gurjar	PIET15EE020	Y	Y	Y	Y
8	PriyanshSharma	PIET15EE032	Y	Y	Y	Y
9	Dinesh Chandra Gadri	PIET15EE008	Y	Y	Y	Y
10	Piyush Agrawal	PIET15EE302	Y	Y	Y	Y
11	Yogesh Kumar	PIET15EE062	Y	Y	Y	Y
12	Yash Sharma	PIET15EE059	Y	Y	Y	Y
13	Enesh Nigam	PIET15EE010	Y	Y	Y	Y
14	Saddam Hussain	PIET15EE063	Y	Y	Y	Y
15	Dhara Singh Yogi	PIET15EE007	Y	Y	Y	Y
16	Jai prakash Meena	PIET15EE016	Y	Y	Y	Y
17	Divyansh Vyas	PIET15EE009	Y	Y	Y	Y
18	Kshtiz Sharma	PIET15EE019	Y	Y	Y	Y
19	Gaurav tiwari	PIET15EE011	Y	Y	Y	Y
20	Aniket Rathore	PIET15EE004	Y	Y	Y	Y
21	Balwant Singh	PIET15EE006	Y	Y	Y	Y
22	Manvendra Singh	PIET15EE023	Y	Y	Y	Y
23	Hareesh Kumar	PIET15EE012	Y	Y	Y	Y
24	Ajay kumar meena	PIET15EE003	Y	Y	Y	Y
25	Kapil Meena	PIET15EE018	Y	Y	Y	Y
26	Anuj Sharma	PIET15EE005	Y	Y	Y	Y
27	Rakesh gurjar	PIET15EE038	Y	Y	Y	Y



28	Vaibhav kumar goyal	PIET15EE054	Y	Y	Y	Y
29	Md. Kamaluddin	PIET15EE026	Y	Y	Y	Y
30	Roushan kumar patel	PIET15EE044	Y	Y	Y	Y
31	Sunny kumar Patel	PIET15EE051	Y	Y	Y	Y
32	Ikram Md.	PIET15EE064	Y	Y	Y	Y
33	Sanskriti Arela	PIET15EE701	Y	Y	Y	Y
34	Vaibhav tiwari	PIET15EE055	Y	Y	Y	Y
35	Vikash Gora	PIET15EE057	Y	Y	Y	Y
36	Sahil	PIET15EE047	Y	Y	Y	Y
37	Rupendra siroya		Y	Y	Y	Y
38	Rahul Sharma		Y	Y	Y	Y
39	Alisha	PIET15EE0302	Y	Y	Y	Y
40	Satyajeet Singh	PIET15EE049	Y	Y	Y	Y
41	Deepanshu Sharma	PIET/EE/14/020	Y	Y	Y	Y
42	Ajay Yadav (psy)	PIET/EE/14/004	Y	Y	Y	Y
43	Gagan Sharma	PIET/EE/14/022	Y	Y	Y	Y
44	Arpita Vijayvergiya	PIET/EE/14/009	Y	Y	Y	Y
45	Akshay Nagar	PIET/EE/14/006	Y	Y	Y	Y
46	Shubham Goyal	PIET/EE/14/052	Y	Y	Y	Y
47	Vimal Parasar	PIET/EE/14/061	Y	Y	Y	Y
48	Jethu singh	PIET/EE/14/027	Y	Y	Y	Y
49	Lakshman Ram	PIET/EE/14/035	Y	Y	Y	Y
50	Dinesh Shrimal	PIET/EE/14/021	Y	Y	Y	Y
51	Bhupesh sharma	PIET/EE/14/015	Y	Y	Y	Y
52	Ajay Yadav (aky)	PIET/EE/14/005	Y	Y	Y	Y

