SRI BHARATHI

ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Kaikkurichi, Pudukkottai -622 303

www.sbec.edu.in

NAAC DOCUMENTS

Quality Indicator Frame Work

Criterion – 1

CURRICULAR ASPECTS

Submitted by

IQAC

Internal Quality Assurance Cell

Sri Bharathi Engineering College for Women

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
KAIKKURUCHI, PUDUKOTTAI – 622 303
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

1.2 Academic Flexibility (30)

1.2.1 Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. (where the students of the institution have enrolled and successfully completed during the last five years)

AND

1.2.2 Percentage of students enrolled in Certificate/ Value added courses and also completed online courses of MOOCs, SWAYAM, NPTEL etc. as against the total number of students during the last five years

VAC Title:	**DESIGNING,OPERATION,CONTROL,MONITORING & MAINTENANCE OF SOLAR PANELS**				
Resource Person:	Mr.G.Vikneshwaran, Managing Director, PV Solar Power Tech,2700/3, Pallavangulam,Vadakarai, Opp Athikalathu Alangara Malligai,Pudukottai-01.				
Date of conduct from :	**09.12.2019**	**To**:	**14.12.2019**	**Duration**:	**36 Hours**
Organized Department :	**ELECTRICAL AND ELECTRONICS ENGINEERING**				
Participant Year:	**2, 3,4**	**Semester:**	**EVEN**	**No. of Students Registered :**	**28**
Venue:	Tutorial Hall-42,SBECW				

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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
KAIKKURUCHI, PUDUKOTTAI – 622 303
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

DEPARTMENT CIRCULAR Date: 29/11/2019

It is planned to conduct Value added course by the Department of Electrical and Electronics Engineering for all Second, Third & Final year on **"DESIGN, OPERATION, CONTROL, MONITORING & MAINTENANCE OF SOLAR PANELS"** from 09.12.2019 to 14.12.2019. Certificates will be issued to all the eligible participants at the end of the Course. The Resource person details are shown in table below.

RESOURSE PERSON DETAILS:

Name:	**Mr.G.Vikneshwaran**
Designation:	**Managing Director**
Company name with Address:	**PV Solar Power Tech,** **2700/3,Pallavangulam,Vadakarai,** **Opp Athikalathu Alangara Malligai,Pudukottai-01.**
Mail id:	**pvsolarpowertech@gmail.com**

Dr. S.THILAGAVATHI M.E.,Ph.D.,
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29/11/19
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Cc:

- Principal's Office
- IQAC Coordinator
- Class In charges - II, III & IV-year of EEE
- II, III & IV-year EEE Students
- Notice Board

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KAIKKURUCHI, PUDUKOTTAI – 622 303

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

VALUE ADDED COURSE

DESIGN, OPERATION, CONTROL, MONITORING &MAINTENANCE OF SOLAR PANELS

SCHEDULE

S.NO	TOPICS	DURATION	DATE
1.	Introduction to Solar Resource and Radiation	3	09.12.19
2.	Characteristics of PV cells, Graphic representations of PV cell performance.	3	09.12.19
3.	Grid-interactive inverters and its protection systems.	3	10.12.19
4.	Roof mounting systems, Ground mounting systems, Sun-tracking systems.	3	10.12.19
5.	Designing Grid-connected PV Systems	3	11.12.19
6.	System protection, Lightning and surge protection	3	11.12.19
7.	Losses in utility-interactive PV systems.	3	12.12.19
8.	PV array installation, Cable sizing.	3	12.12.19
9.	Inverter installation.	3	13.12.19
10.	Testing, Commissioning, System documentation.	3	13.12.19
11.	System maintenance, PV array maintenance.	3	14.12.19
12.	Inverter maintenance, Troubleshooting PV arrays	3	14.12.19
TOTAL HOURS		36 HOUR	

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

STUDENT NAME LIST FOR VALUE ADDED COURSE

DESIGN, OPERATION, CONTROL, MONITORING& MAINTENANCE OF SOLAR ENERGY

S.NO	NAME	REG.NO	YEAR & SEMESTER
1	AARTHI G	912618105001	II & IV
2	AASHA R	912618105002	II & IV
3	AGARI S	912618105003	II & IV
4	JEEVITHA R	912618105004	II & IV
5	NISHA K	912618105005	II & IV
6	RAMANA R	912618105006	II & IV
7	SNEHA S	912618105007	II & IV
8	VINOTHINI V	912618105301	II & IV
9	NAZEERA BANU I	912617105001	III & VI
10	PARTHIKA S	912617105002	III & VI
11	PRIYA T	912617105003	III & VI
12	SAJINA K	912617105004	III & VI
13	SELSIYA R	912617105005	III & VI
14	THENMOZHI J	912617105006	III & VI
15	VANITHA E	912617105007	III & VI
16	SIYAMALADEVI S	912617105302	III & VI
17	ABIRAMI M	912616105001	IV & VIII
18	AJITHA R	912616105002	IV & VIII
19	GIRIJA V	912616105003	IV & VIII
20	JOTHIKA A	912616105006	IV & VIII
21	KARUNAMBIGAI A	912616105007	IV & VIII
22	PRASANNA K	912616105008	IV & VIII
23	SARANYA G	912616105009	IV & VIII

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24	SNEHA V	912616105010	IV & VIII
25	SUBHASRI T	912616105011	IV & VIII
26	SURIYAKALA R	912616105013	IV & VIII
27	MAHESWARI R	912616105301	IV & VIII
28	PRINCY ROSELIN I	912616105302	IV & VIII

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

ATTENDANCE SHEET FOR VALUE ADDED COURSE

DESIGN ,OPERATION ,CONTROL ,MONITORING & MAINTENANCE OF SOLAR PANELS

S.NO	REG. NO	NAME	YEAR/ SEM	09.12.19		10.12.19		11.12.19		12.12.19		13.12.19		14.12.19		NO. OF CLASS ATTENDED	SIGN OF STUDENT
				F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N		
1	912618105001	AARTHI G	II & IV	/	/	/	/	/	/	/	/	/	/	/	/	12	G. Aarthi
2	912618105002	AASHA R	II & IV	/	/	/	/	/	/	/	/	/	/	/	/	12	R. Aasha
3	912618105003	AGARI S	II & IV	/	/	/	/	/	/	/	/	/	/	/	/	12	S. Agaraj
4	912618105004	JEEVITHA R	II & IV	/	a	/	/	/	/	/	/	/	/	/	/	11	R. Jeetha
5	912618105005	NISHA K	II & IV	/	/	/	/	/	/	/	/	/	/	/	/	12	K. Nisha
6	912618105006	RAMANA R	II & IV	/	/	/	/	/	/	/	/	/	/	/	/	12	R. Ramana
7	912618105007	SNEHA S	II & IV	/	/	/	/	/	/	/	/	/	/	/	/	12	S. Sneha

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8	912618105301	VINOTHINI V	II & IV	/	/	/	/	/	/	/	/	/	/	/	/	12	V. Vin
9	912617105001	NAZEERA BANU I	III & VI	a	a	/	/	/	/	/	/	/	/	/	/	10	J. Nazeera
10	912617105002	PARTHIKA S	III & VI	/	/	/	/	/	/	/	/	/	/	/	/	12	S. Parthika
11	912617105003	PRIYA T	III & VI	/	/	/	/	/	/	/	/	/	/	/	/	12	T. Priya
12	912617105004	SAJINA K	III & VI	/	/	/	/	/	/	/	/	/	/	/	/	12	K. Sajina
13	912617105005	SELSIYA R	III & VI	/	/	/	/	/	/	/	/	/	/	/	/	12	R. Selsiya
14	912617105006	THENMOZHI J	III & VI	/	/	/	/	/	/	/	/	/	/	/	/	12	J. Thenmozhi
15	912617105007	VANITHA E	III & VI	/	/	/	/	/	/	/	/	/	/	/	/	12	E. Vanitha
16	912617105302	SIYAMALADEVI S	III & VI	/	/	/	/	/	/	/	/	/	/	/	/	12	S. Syamaladevi
17	912616105001	ABIRAMI M	IV & VIII	/	/	/	/	/	a	/	/	/	/	/	/	11	Abirami
18	912616105002	AJITHA R	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	Rajitha
19	912616105003	GIRIJA V	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	Girija
20	912616105006	JOTHIKA A	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	Jothika
21	912616105007	KARUNAMBIGAI A	IV & VIII	/	a	/	/	/	/	/	/	/	/	/	/	11	Karunambigai
22	912616105008	PRASANNA K	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	Prasanna
23	912616105009	SARANYA G	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	G. Saranya

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24	912616105010	SNEHA V	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	Sneha
25	912616105011	SUBHASRI T	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	Subashri
26	912616105013	SURIYAKALA R	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	R. Suriyakala
27	912616105301	MAHESWARI R	IV & VIII	a	/	/	/	/	/	/	/	/	a	/	/	09	Mahesh
28	912616105302	PRINCY ROSELIN I	IV & VIII	/	/	/	/	/	/	/	/	/	/	/	/	12	Princy Rolin

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Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Report on Value Added Course

Title:	**DESIGNING ,OPERATION ,CONTROL ,MONITORING & MAINTENANCE OF SOLAR PANELS**				
Resource Person:	**Mr.G.Vikneshwaran, Managing Director, PV Solar Power Tech,2700/3, Pallavangulam,Vadakarai, Opp Athikalathu Alangara Malligai,Pudukottai-01.**				
Date of conduct from :	**09.Dec.2019**	To:	**14.Dec.2019**	Duration:	**36 Hours**
Organized Department :	**ELECTRICAL AND ELECTRONICS ENGINEERING**				
Participant Year:	**2/ 3 /4**	Semester:	**EVEN**	No. of Students Registered :	**28**
Venue:	**Tutorial Hall-42,SBECW**				

Outcome of Value Added Course (VAC)

At the end of the Course, Students can able to

- Explain about the Solar Resource and Radiation, PV Cells, Modules and Arrays.
- Describe about the inverters and other system components.
- Obtain insight about designing grid-connected pv systems and sizing a pv system.
- Comprehend about the installing grid-connected PV systems.
- Demonstrate about the final inspection of system installation, Testing, Commissioning, System documentation.
- Illustrate about system operation and maintenance.

No. of students successfully completed the VAC course is **28** students based on the following assessment process.

Assessment Process

- Students, who are securing **more than 60% on total score** and secured more than 60% in attendance is eligible to receive the certificate for the VAC course conducted.
- Total Score = (0.5 *Attendance in VAC out of 100 percentage + 0.5 *Test mark in VAC out of 100 marks)

VAC Coordinator | **HoD/ EEE** 17/12/19 | **Principal** 17/12/19

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PUDUKKOTTAI DISTRICT

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PV SOLAR POWER TECH

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Opp Athikalathu Alangara Maligai, Pudukottai-01.
Mail:pvsolarpowertech@gmail.com
Website: www.pvsolarpowertech.com

CERTIFICATE OF PARTICIPATION

This certificate recognizes that **Ms. AARTHI G ,II year, EEE DEPARTMENT** has successfully completed the Value added Course on **"DESIGN, OPERATION, CONTROL, MONITORING, MAINTENANCE OF SOLAR PANELS"** conducted for 6 Days at **Sri Bharathi Engineering College for Women** in association with **PV Solar Power Tech, Pudukkottai** from 09.12.2019 to 14.12.2019.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
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G.VIKNESHWARAN
MANAGING DIRECTOR

PRINCIPAL
SBECW

PV SOLAR POWER TECH

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Website: www.pvsolarpowertech.com

CERTIFICATE OF PARTICIPATION

This certificate recognizes that **Ms. NAZEERA BANU I ,III year, EEE DEPARTMENT** has successfully completed the Value added Course on **"DESIGN, OPERATION, CONTROL, MONITORING, MAINTENANCE OF SOLAR PANELS"** conducted for 6 Days at **Sri Bharathi Engineering College for Women** in association with **PV Solar Power Tech, Pudukkottai** from 09.12.2019 to 14.12.2019.

Dr. S.THILAGAVATHI M.E., Ph.D.,
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Mail:pvsolarpowertech@gmail.com
Website: www.pvsolarpowertech.com

CERTIFICATE OF PARTICIPATION

This certificate recognizes that **Ms. ABIRAMI M ,IV year, EEE DEPARTMENT** has successfully completed the Value added Course on **"DESIGN, OPERATION, CONTROL, MONITORING, MAINTENANCE OF SOLAR PANELS"** conducted for 6 Days at **Sri Bharathi Engineering College for Women** in association with **PV Solar Power Tech, Pudukkottai** from 09.12.2019 to 14.12.2019.

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G.VIKNESHWARAN
MANAGING DIRECTOR

PRINCIPAL
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

VALUE ADDED COURSE

DESIGN ,OPERATION ,CONTROL ,MONITORING & MAINTENANCE OF SOLAR PANELS

Name of student:
Year/Sem: **AU Reg.No:**

MCQ (25 X1 =25 MARKS)

1. Solar cells are made up of

(a) Semiconductor (b) Conductor (c) Insulator (d) All the work.

2. The current density of photovoltaic cell.

(a) 10-20 mA/cm2 (b) 40-50 mA/cm2 (c) 20-40 mA/cm2 (d) 60-100 mA/cm2

3. _____ photo voltaic devices in the form of thin films.

(a) Cadmium Telluroide (b) Cadmium oxide (c) Cadmium sulphide (d) Cadmium sulphate

4. 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.

5. Photovoltaic cell or solar cell converts

(a) Thermal energy into electricity (b) Electromagnetic radiation directly into electricity
(c) Solar radiation into thermal energy (d) Solar radiation into kinetic energy.

6. Why are inverters required on the modern PV Systems ?

(a) To provide metering for the utility (b) To convert direct current (DC) to alternating current (AC)
(c) To convert light to electricity (d) To control charge discharge battery.

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7. Which components are required for an on-grid PV installation?

(a) Charge controller (b) Solar panel (c) Inverter (d) a,b,c.

8. The charge controller function is

(a) To regulate the incoming PV Power (b) Cut-off the charging when battery is full (c) Charges the battery as per battery specified battery voltage (d) a,b,c

9. For grid-connected PV systems, such parameters should be matched to the ranges used by the grid?

(a) Current (b) Voltage (c) Frequency (d) All above.

10. Solar power conditioning is an important to ensure that,

(a) The energy generated can be effectively and safely delivered to consumers.
(b) The serves to balance the system and to make it sustainably operational
(c) The distribution of power between off-grid and transmission paths.
(d) The electric power generated by PV modules goes through a series of transformations.

11. Which metal is used for making solar cell

(a) Gold (b) Iron (c) Aluminium (d) Silicon

12. Full form of FF in the solar field is _____
a) Form factor b) Fill factor c) Face factor d) Fire factor

13. Standard testing condition (STC) refers to _____ .

(a) Irradiation-1000 W/m^2,AM 1.5G global solar radiation, module temperature-25 C
(b) Irradiation-500 W/m^2,AM 1.5G global solar radiation, module temperature-20 C
(c) Irradiation-1500 W/m^2,AM 1.5G global solar radiation, module temperature-35 C
(d) Irradiation-2000 W/m^2,AM 1.5G global solar radiation, module temperature-30 C

14.Which of the following are the steps involved in designing of a standalone PV system?

(a) Solar energy estimation (b)Load estimation
(c) Inverter selection and battery bank size (d) All the above.

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15. _____ pv system is located at the load centre and dedicated to meet all the electrical loads of a village/ community or a specific set of loads basically in remote or rural areas which have no access to grid supply

(a) Hybrid solar pv system (b) Grid – iterative pv system
(c) Standalone pv system (d) None of the above.

16. Approach not used in roof top mounting PV arrays.

(a) Rack (b) Shingle (c) Standoff (d) Standon

17. In line commutated inverter, which signal is used to synchronise the grid with the inverter ?

(a) Load signal (b) Grid signal (c) signal in generating station (d) none of the above.

18. In self commutated inverter, _____is used to lock the inverter signal with that of grid

(a) Instrinsic electronics (b) Extrinsic electronics (c) both a & b (d) none of the above

19. For non critical applications mostly the stand-alone systems are sized for a system availability of about _____

(a)95% (3 to 5 days of autonomy) (b) 99%(6 to 10days of autonomy)
(c) 85%(2 to 4 days of autonomy) (d)80%(1 to 3 days of autonomy)

20. The percentage of time over an average year that a stand-alone pv system meets the system load requirements is called _____

(a) Useful capacity ratio (b) Rated capacity (c) System availability (d) critical design

21. The angle made in the horizontal plane between the horizontal line due south and the projection of the normal to the surface on the horizontal plane is

(a) Hour angle angle (b) Declination (c) Surface azimuth angle (d)Solar altitude

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22. Solar radiation flux is usually measured with the help of

(a) Anemometer (b) Pyranometer (c) Sunshine recorder (d) All of the above

23. Which of the following type of collector is used for low temperature systems?

(a) Flat plate collector (b) Line focusing parabolic collector (c) Paraboloid dish collector
(d) All of the above

24. The efficiency of various types of collectors _____ with _____ temperature.

(a) increases, decreasing
(b) decreases, increasing
(c) remains same, increasing
(d) depends upon type of collector

25. Maximum efficiency is obtained in

(a) Flat plate collector
(b) Evacuated tube collector
(c) Line focusing collector
(d) Paraboloid dish collector

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

VALUE ADDED COURSE

DESIGN,OPERATION,CONTROL,MONITORING & MAINTENANCE OF SOLAR PANELS

ANSWER KEY FOR MCQ

1	d	2	b	3	a	4	c	5	b
6	b	7	d	8	d	9	d	10	a
11	d	12	b	13	a	14	d	15	c
16	d	17	b	18	a	19	a	20	c
21	c	22	b	23	a	24	b	25	d

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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

VALUE ADDED COURSE

DESIGN , OPERATION ,CONTROL , MONITORING & MAINTENANCE OF SOLAR PANELS

Name of student: R. Aasha
Year/Sem: II / IV

24/25

AU Reg.No: 912618105002

Dr. S.THILAGAVATHI M.E.,Ph.D.,
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MCQ (25 X1 =25 MARKS)

1. Solar cells are made up of

(a) Semiconductor (b) Conductor (c) Insulator (d) All the work.

2. The current density of photovoltaic cell.

(a) 10-20 mA/cm2 (b) 40-50 mA/cm2 (c) 20-40 mA/cm2 (d) 60-100 mA/cm2

3. _____ photo voltaic devices in the form of thin films.

(a) Cadmium Telluroide (b) Cadmium oxide (c) Cadmium sulphide (d) Cadmium sulphate

4. 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.

5. Photovoltaic cell or solar cell converts

(a) Thermal energy into electricity (b) Electromagnetic radiation directly into electricity
(c) Solar radiation into thermal energy (d) Solar radiation into kinetic energy.

6. Why are inverters required on the modern PV Systems ?

(a) To provide metering for the utility ((b) To convert direct current (DC) to alternating current (AC)

(c) To convert light to electricity (d) To control charge discharge battery.

7. Which components are required for an on-grid PV installation?

(a) Charge controller (b) Solar panel (c) Inverter (d) a,b,c.

8. The charge controller function is

(a) To regulate the incoming PV Power (b) Cut-off the charging when battery is full (c) Charges the battery as per battery specified battery voltage (d) a,b,c

9. For grid-connected PV systems, such parameters should be matched to the ranges used by the grid?

(a) Current (b) Voltage (c) Frequency (d) All above.

10. Solar power conditioning is an important to ensure that,

(a) The energy generated can be effectively and safely delivered to consumers.
(b) The serves to balance the system and to make it sustainably operational
(c) The distribution of power between off-grid and transmission paths.
(d) The electric power generated by PV modules goes through a series of transformations.

11. Which metal is used for making solar cell

(a) Gold (b) Iron (c) Aluminium (d) Silicon

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12. Full form of FF in the solar field is _____
a) Form factor (b) Fill factor c) Face factor d) Fire factor

13. Standard testing condition (STC) refers to _____ .

(a) Irradiation-1000 W/m^2,AM 1.5G global solar radiation, module temperature-25 C
(b) Irradiation-500 W/m^2,AM 1.5G global solar radiation, module temperature-20 C
(c) Irradiation-1500 W/m^2,AM 1.5G global solar radiation, module temperature-35 C
(d) Irradiation-2000 W/m^2,AM 1.5G global solar radiation, module temperature-30 C

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14. Which of the following are the steps involved in designing of a standalone PV system?

(a) Solar energy estimation (b)Load estimation
(c) Inverter selection and battery bank size (d) All the above.

15. _____ pv system is located at the load centre and dedicated to meet all the electrical loads of a village/ community or a specific set of loads basically in remote or rural areas which have no access to grid supply

(a) Hybrid solar pv system (b) Grid – iterative pv system
(c) Standalone pv system (d) None of the above.

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16. Approach not used in roof top mounting PV arrays.

(a) Rack (b) Shingle (c) Standoff (d) Standon

17. In line commutated inverter, which signal is used to synchronise the grid with the inverter ?

(a) Load signal (b) Grid signal (c) signal in generating station (d) none of the above.

18. In self commutated inverter, _____is used to lock the inverter signal with that of grid

(a) Instrinsic electronics (b) Extrinsic electronics (c) both a & b (d) none of the above

19. For non critical applications mostly the stand-alone systems are sized for a system availability of about _____

(a)95% (3 to 5 days of autonomy) (b) 99%(6 to 10days of autonomy)
(c) 85%(2 to 4 days of autonomy) (d)80%(1 to 3 days of autonomy)

20. The percentage of time over an average year that a stand-alone pv system meets the system load requirements is called _____

(a) Useful capacity ratio (b) Rated capacity (c) System availability (d) critical design

21. The angle made in the horizontal plane between the horizontal line due south and the projection of the normal to the surface on the horizontal plane is

(a) Hour angle (b) Declination (c) Surface azimuth angle (d)Solar altitude angle

22. Solar radiation flux is usually measured with the help of

(a) Anemometer (b) Pyranometer (c) Sunshine recorder (d) All of the above

23. Which of the following type of collector is used for low temperature systems?

(a) Flat plate collector (b) Line focusing parabolic collector (c) Paraboloid dish collector (d) All of the above

24. The efficiency of various types of collectors _____ with _____ temperature.

(a) increases, decreasing (b) decreases, increasing
(c) remains same, increasing (d) depends upon type of collector

25. Maximum efficiency is obtained in

(a) Flat plate collector (b) Evacuated tube collector
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

VALUE ADDED COURSE

DESIGN , OPERATION ,CONTROL , MONITORING & MAINTENANCE OF SOLAR PANELS

Name of student: E. Vanitha
Year/Sem: III / VI

24/25

AU Reg.No: 912617105007

MCQ (25 X1 =25 MARKS)

1. Solar cells are made up of

(a) Semiconductor (b) Conductor (c) Insulator (d) All the work.

2. The current density of photovoltaic cell.

(a) 10-20 mA/cm2 (b) 40-50 mA/cm2 (c) 20-40 mA/cm2 (d) 60-100 mA/cm2

3. _____ photo voltaic devices in the form of thin films.

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(c) To convert light to electricity (d) To control charge discharge battery.

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

VALUE ADDED COURSE

DESIGN , OPERATION ,CONTROL ,MONITORING & MAINTENANCE OF SOLAR PANELS

Name of student: V. Sneha
Year/Sem: IV | VIII

22/25

AU Reg.No: 912616105010

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

MARK SHEET FOR VALUE ADDED COURSE- DESIGN,OPERATION,CONTROL,MONITORING & MAINTENANCE OF SOLAR PANELS

S.NO	REG. NO	NAME	YEAR/ SEM	ATTENDACE 50% (A)		VAC –MCQ 50%(B)		OVERALL MARK (A+B)
				No of Session Attended	MARKS	No of Correct Answer	MARKS	
1	912618105001	AARTHI G	II & IV	12	100	23	92	96
2	912618105002	AASHA R	II & IV	12	100	24	96	98
3	912618105003	AGARI S	II & IV	12	100	20	80	90
4	912618105004	JEEVITHA R	II & IV	11	92	23	92	92
5	912618105005	NISHA K	II & IV	12	100	21	84	92
6	912618105006	RAMANA R	II & IV	12	100	24	96	98
7	912618105007	SNEHA S	II & IV	12	100	22	88	94
8	912618105301	VINOTHINI V	II & IV	12	100	21	84	92
9	912617105001	NAZEERA BANU I	III & VI	10	83	24	96	90
10	912617105002	PARTHIKA S	III & VI	12	100	23	92	96
11	912617105003	PRIYA T	III & VI	12	100	20	80	90
12	912617105004	SAJINA K	III & VI	12	100	24	96	98
13	912617105005	SELSIYA R	III & VI	12	100	21	84	92
14	912617105006	THENMOZHI J	III & VI	12	100	23	92	96
15	912617105007	VANITHA E	III & VI	12	100	24	96	98
16	912617105302	SIYAMALADEVI S	III & VI	12	100	20	80	90

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17	912616105001	ABIRAMI M	IV & VIII	11	92	22	88	90
18	912616105002	AJITHA R	IV & VIII	12	100	23	92	96
19	912616105003	GIRIJA V	IV & VIII	12	100	24	96	98
20	912616105006	JOTHIKA A	IV & VIII	12	100	20	80	90
21	912616105007	KARUNAMBIGAI A	IV & VIII	11	92	20	80	86
22	912616105008	PRASANNA K	IV & VIII	12	100	21	84	92
23	912616105009	SARANYA G	IV & VIII	12	100	24	96	98
24	912616105010	SNEHA V	IV & VIII	12	100	22	88	94
25	912616105011	SUBHASRI T	IV & VIII	12	100	20	80	90
26	912616105013	SURIYAKALA R	IV & VIII	12	100	23	92	96
27	912616105301	MAHESWARI R	IV & VIII	9	75	20	80	78
28	912616105302	PRINCY ROSELIN I	IV & VIII	12	100	24	96	98

VAC COORDINATOR

HoD/EEE

HOD EEE
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KAIKKURICHI,
PUDUKKOTTAI - 622 303.

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