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 – 2

Teaching-Learning and Evaluation

Submitted by

IQAC

Internal Quality Assurance Cell

Sri Bharathi Engineering College for Women

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Criteria 2	Teaching-Learning and Evaluation	350

Key Indicator- 2.3. Teaching- Learning Process (40)

2019-2020

ELECTRICAL AND ELECTRONICS ENGINEERING

PARTICIPATIVE LEARNING

Activity	Number of Students attended	Page No.
Value Added Course (VAC)	56	3
Symposium and Workshop	09	64
TOTAL STUDENTS ATTENDED	65	-

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Criteria 2	Teaching-Learning and Evaluation	350

Key Indicator- 2.3 Teaching- Learning Process (40)

2019-2020

ELECTRICAL AND ELECTRONICS ENGINEERING

PARTICIPATIVE LEARNING

VALUE ADDED COURSE

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 / ODD SEMESTER

DEPARTMENT CIRCULAR Date: 14/06/2019

Value Added Course offered by the Department of EEE will be conducted for II, III, IV year students on **"ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS"** from 24.06.2019 to 28.06.2019. Certificates will be issued to all the eligible participants at the end of the Course.

RESOURSE PERSON DETAILS:

Name:	**Mr.K.Kamaraj**	**Mr.R.Anbalagan**
Designation:	**Co-Founder**	**Senior Engineer**
Company name with Address:	**Power Integrated Solutions PVT LTD, #10A/3 Radhakrishna Colony, Sastri Road,Thennur,Trichy-17.**	
Mail id:	**powerintegratedsolutions@gmail.com**	

14/06/19
HoD/EEE
HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

Cc:

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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 / ODD SEMESTER

VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS

SCHEDULE

S.NO	TOPICS	DURATION	DATE
1.	Electrical Control system and their classifications.	2	24.06.2019
2.	Design of Electrical control circuits.	2	24.06.2019
3.	Real time applications of control system	2	24.06.2019
4.	Design, installation, testing and monitoring of electrical network systems	3	25.06.2019
5.	Model control system theory and its applications, state variable for engineering.	3	25.06.2019
6.	Bandwidth, sensitivity, damping and oscillations	3	26.06.2019
7.	Fully automated system with stability analysis	3	26.06.2019
8.	Filters, sensors, and encoder responses of the system	3	27.06.2019
9.	Robust control system and Intelligent control schemes	3	27.06.2019
10.	Digital processing of signals, Analog and digital conversion	3	28.06.2019
11.	Study of simulation of electrical control techniques with a systematic approach to digital logic design.	3	28.06.2019
TOTAL HOURS		30HOUR	

VAC COORDINATOR

HoD/EEE

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

KAIKKURUCHI, PUDUKKOTTAI-622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

STUDENT NAME LIST FOR VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

VAC COORDINATOR

HoD/EEE

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

KAIKKURICHI, PUDUKKOTTAI-622 303

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

ATTENDANCE SHEET FOR VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS

S.NO	REG. NO	NAME	YEAR/ SEM	24.06.19		25.06.19		26.06.19		27.06.19		28.06.19		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		
1	912618105001	AARTHI G	II & III	/	/	/	/	/	/	/	/	/	/	10	G. Aarthi
2	912618105002	AASHA R	II & III	/	/	/	/	/	/	/	/	/	/	10	R. Aasha
3	912618105003	AGARI S	II & III	/	a	/	/	/	/	/	/	/	/	09	S. Agari
4	912618105004	JEEVITHA R	II & III	/	/	/	/	/	/	/	/	/	/	10	Rjeetha
5	912618105005	NISHA K	II & III	/	/	/	/	/	/	/	/	/	/	10	K. Nisha
6	912618105006	RAMANA R	II & III	/	/	/	/	/	a	/	/	/	/	09	R. Ramana
7	912618105007	SNEHA S	II & III	/	/	/	/	/	/	/	/	/	/	10	S. Sneha

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303. Pudukkottai Dt.

8	912618105301	VINOTHINI V	II & III	/	/	/	/	/	/	/	/	/	/	10	V. Vi
9	912617105001	NAZEERA BANU I	III & V	/	/	/	/	/	/	/	/	/	/	10	
10	912617105002	PARTHIKA S	III & V	/	/	/	/	/	/	/	/	/	/	10	
11	912617105003	PRIYA T	III & V	/	/	/	/	/	/	/	/	/	/	10	
12	912617105004	SAJINA K	III & V	/	/	/	/	/	/	/	/	/	/	10	
13	912617105005	SELSIYA R	III & V	/	/	/	/	/	/	/	/	/	/	10	
14	912617105006	THENMOZHI J	III & V	/	/	/	/	/	/	/	/	/	/	10	
15	912617105007	VANITHA E	III & V	/	/	/	/	/	/	/	/	/	/	10	
16	912617105302	SIYAMALADEVI S	III & V	/	/	/	/	/	/	/	/	/	/	10	
17	912616105001	ABIRAMI M	IV & VII	/	/	/	/	/	/	/	/	/	/	10	
18	912616105002	AJITHA R	IV & VII	/	/	/	/	/	/	/	/	/	/	10	
19	912616105003	GIRIJA V	IV & VII	/	/	/	/	/	/	/	/	/	/	10	
20	912616105006	JOTHIKA A	IV & VII	/	/	/	/	/	/	/	/	/	/	10	
21	912616105007	KARUNAMBIGAI A	IV & VII	/	/	/	/	/	/	/	/	/	/	10	
22	912616105008	PRASANNA K	IV & VII	/	/	/	/	/	/	/	/	/	/	10	
23	912616105009	SARANYA G	IV & VII	/	/	/	/	/	/	/	/	/	/	10	

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

24	912616105010	SNEHA V	IV & VII	/	a	/	/	/	/	/	/	/	/	09	Sneha
25	912616105011	SUBHASRI T	IV & VII	/	/	/	/	/	/	/	/	/	/	10	Subashri
26	912616105013	SURIYAKALA R	IV & VII	/	/	/	/	/	/	/	/	/	/	10	R. Suriyakala
27	912616105301	MAHESWARI R	IV & VII	/	/	/	/	/	/	/	/	/	/	10	Maheshwari
28	912616105302	PRINCY ROSELIN I	IV & VII	/	/	/	/	/	/	/	/	/	/	10	Princy Roselin

VAC COORDINATOR

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

HoD/EEE
HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Report on Value Added Course

Title:	**ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS**
Resource Person:	**1.K.Kamaraj,** Co-Founder, Power Integrated Solutions PVT LTD, #10A/3 Radhakrishna Colony, Sastri Road, Thennur,Trichy-17. **2. R.Anbalagan** Senior Engineer

Date of conduct from :	**24.June.2019**	To:	**28.June.2019**	Duration:	**30 Hours**
Organized Department :	**ELECTRICAL AND ELECTRONICS ENGINEERING**				
Participant Year:	**2/ 3 /4**	Semester:	**ODD**	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 basics of electrical control system and their classifications.
- Describe about the design, installation, testing and monitoring of electrical network systems.
- Obtain the insight about optimizing control techniques.
- Comprehend about fully automated system with stability analysis.
- Demonstrate about robust control system and intelligent control schemes.
- Illustrated about simulation of electrical control techniques with a systematic approach to digital logic design.

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** 24/7/19 | **Principal** 6/2/19

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

PRINCIPAL
SRI BHARATHI ENGINEERIN
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT

CERTIFICATE OF COMPLETION

Power Integrated Solutions
#10A/3 Radhakrishna Colony,
Sastri Road,Thennur,Trichy-17
powerintegratedsolutions@gmail.com

This is to certify that Mr/Ms AARTHI G, Reg No 912618105001 has successfully completed the value-added program on "ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS" conducted at **Sri Bharathi Engineering College for Women, Pudukkottai** in association with **Power Integrated Solutions**, Trichy from 24.06.2019 to 28.06.2019.

HR Manager.

HR MANAGER
Power Integrated Solutions

HOD/EEE
SBECW

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

PRINCIPAL
SBECW

CERTIFICATE OF COMPLETION

Power Integrated Solutions
#10A/3 Radhakrishna Colony,
Sastri Road,Thennur,Trichy-17
powerintegratedsolutions@gmail.com

This is to certify that Mr/Ms SAJINA K, Reg No 912617105004 has successfully completed the value-added program on "ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS" conducted at **Sri Bharathi Engineering College for Women, Pudukkottai** in association with **Power Integrated Solutions**, Trichy from 24.06.2019 to 28.06.2019.

HR Manager.

HR MANAGER
Power Integrated Solutions

HOD/EEE
SBECW

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303 Pudukkottai Dt.

PRINCIPAL
SBECW

CERTIFICATE OF COMPLETION

Power Integrated Solutions
#10A/3 Radhakrishna Colony,
Sastri Road,Thennur,Trichy-17
powerintegratedsolutions@gmail.com

This is to certify that Mr/Ms SUBHASRI T, Reg No 912616105011 has successfully completed the value-added program on "ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS" conducted at Sri Bharathi Engineering College for Women, Pudukkottai in association with Power Integrated Solutions, Trichy from 24.06.2019 to 28.06.2019.

HR Manager.

HR MANAGER
Power Integrated Solutions

HOD/EEE
SBECW

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

PRINCIPAL
SBECW

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS.

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

MULTIPLE CHOICE QUESTIONS (25 X1 =25 MARKS)

1. What is Control System?

   a) Control system is a system in which the output is controlled by varying the input

   b) Control system is a device that will not manage or regulate the behavior of other devices using control loops

   c) Control system is a feedback system that can be both positive and negative

   d) Control System is a system in which the input is controlled by varying the output

2. Which of the following is not the feature of a modern control system?

   a) Correct power level b) No oscillation

   c) Quick response d) Accuracy

3. A control system working under unknown random actions is called _____

   a) Adaptive control system b) Stochastic control system

   c) Computer control system d) Digital data system

4. Which of the following element is not used in an automatic control system?

   a) Final control element b) Sensor

   c) Oscillator d) Error detector

5. A major part of the automatic control theory applies to the:

   a) Casual systems b) Linear Time invariant systems

   c) Time variant systems d) Non-linear systems

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

6. Traffic light system is the example of:
   a) Open-loop system b)Closed-loop system
   c) Both (a) and (b) d) None of these

7. The impulse response of an RL circuit is:
   a) Parabolic function b)Step function
   c) Rising exponential function d)Decaying exponential function

8. Which of the following is an open loop control system?
   a) Ward Leonard control b) Metadyne
   c) Stroboscope d) Field controlled D.C. motor

9. What should be the nature of bandwidth for a good control system?
   a) Small b) Medium c) Large d) All of the mentioned

10. Which of the following statement is true about Feedback control system?
    a) Equally sensitive to forward feedback path parameter changes
    b) Insensitive to both forward and feedback path parameter changes
    c) Less sensitive to feedback path parameter changes than to forward path parameter changes
    d) Less sensitive to forward path parameter changes than to feedback path parameter changes

11. In a stable control system backlash can cause which of the following?
    a) Overdamping b) Low-level oscillations
    c) Underdamping d) Poor stability at reduced values of open loop gain

12. In a control system the output of the controller is given to
    a) Amplifier b) Sensor
    c) Final control element d) Comparator

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

13. A Control System with excessive noise, is likely to suffer from which of the following?

a) Oscillations
b) Saturation in amplifying stages
c) Loss of gain
d) Vibrations

14. In a temperature control system, what conversion in signal takes place?

a) Error to Digital
b) Error to Analog
c) Digital to Analog
d) Analog to Digital

15. Which of the following control systems have unpredictable & non-repeatable?

a) Stochastic control systems
b) Deterministic control systems
c) Static control systems
d) Dynamic control systems

16. In pneumatic control systems the control valve used as the final control element converts

a) Position change to pressure signal
b) Electric signal to pressure signal
c) Pressure signal to electric signal
d) Pressure signal to position change

17. In closed loop control system, what is the sensitivity of the gain of the overall system, M to the variation in G?

a) G/1GH b) 1/1+GH c) G/1+G d) 1/1+G

18. Feedback control system is basically _____

a) Band pass filter b) Band stop filter c) High pass filter d) Low pass filter

19. A control system is generally met with the time response specifications:

a) Damping factor
b) Setting time

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

c) Steady state accuracy
d) All of the mentioned

20. Which of the following is not a feature of a good control system?
a) Slow response
b) Sufficient power handling capacity
c) Good stability
d) Good accuracy

21. With negative feedback in a closed loop control system, the system sensitivity to parameter variation:
a) Becomes infinite
b) Becomes zero
c) Decreases
d) Increases

22. Which of the following is the input of a controller?
a) Signal of fixed amplitude not dependent on desired variable value
b) Desired variable value
c) Sensed signal
d) Error signal

23. Effect of feedback on sensitivity is minimum in:
a) Closed loop control system
b) Open and closed loop control systems
c) Open loop control system
d) None of the mentioned

24. Sampling is necessary _____
a) Non automated control system
b) Automated control system
c) In complex control system
d) Where high accuracy is required

25. Which of the motions in actuators are preferred?
a) Rotary
b) Stationary
c) Non-Stationary
d) Translator

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS.

ANSWER KEY FOR MCQ

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS.

Name of student: G1 AARTHI
Year/Sem: II / III

20/25

AU Reg.No: 912618105001

MULTIPLE CHOICE QUESTIONS (25 X1 =25 MARKS)

1. What is Control System?
   a) Control system is a system in which the output is controlled by varying the input
   b) Control system is a device that will not manage or regulate the behavior of other devices using control loops
   c) Control system is a feedback system that can be both positive and negative
   d) Control System is a system in which the input is controlled by varying the output

2. Which of the following is not the feature of a modern control system?
   a) Correct power level
   b) No oscillation
   c) Quick response
   d) Accuracy

3. A control system working under unknown random actions is called _____
   a) Adaptive control system
   b) Stochastic control system
   c) Computer control system
   d) Digital data system

4. Which of the following element is not used in an automatic control system?
   a) Final control element
   b) Sensor
   c) Oscillator
   d) Error detector

5. A major part of the automatic control theory applies to the:
   a) Casual systems
   b) Linear Time invariant systems
   c) Time variant systems
   d) Non-linear systems

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

6. Traffic light system is the example of:

a) Open-loop system
b)Closed-loop system
c) Both (a) and (b)
d) None of these

7. The impulse response of an RL circuit is:

a) Parabolic function
b)Step function
c) Rising exponential function
d)Decaying exponential function

8. Which of the following is an open loop control system?

a) Ward Leonard control
b) Metadyne
c) Stroboscope
d) Field controlled D.C. motor

9. What should be the nature of bandwidth for a good control system?

a) Small
b) Medium
c) Large
d) All of the mentioned

10. Which of the following statement is true about Feedback control system?

a) Equally sensitive to forward feedback path parameter changes
b) Insensitive to both forward and feedback path parameter changes
c) Less sensitive to feedback path parameter changes than to forward path parameter changes
d) Less sensitive to forward path parameter changes than to feedback path parameter changes

11. In a stable control system backlash can cause which of the following?

a) Overdamping
b) Low-level oscillations
c) Underdamping
d) Poor stability at reduced values of open loop gain

12. In a control system the output of the controller is given to

a) Amplifier
b) Sensor
c) Final control element
d) Comparator

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

13. A Control System with excessive noise, is likely to suffer from which of the following?

a) Oscillations b) Saturation in amplifying stages

c) Loss of gain d) Vibrations

14. In a temperature control system, what conversion in signal takes place?

a) Error to Digital b) Error to Analog

c) Digital to Analog d) Analog to Digital

15. Which of the following control systems have unpredictable & non-repeatable?

a) Stochastic control systems b) Deterministic control systems

c) Static control systems d) Dynamic control systems

16. In pneumatic control systems the control valve used as the final control element converts

a) Position change to pressure signal b) Electric signal to pressure signal

c) Pressure signal to electric signal d) Pressure signal to position change

17. In closed loop control system, what is the sensitivity of the gain of the overall system, M to the variation in G?

a) G/1GH b) 1/1+GH c) G/1+G d) 1/1+G

18. Feedback control system is basically _____

a) Band pass filter b) Band stop filter c) High pass filter d) Low pass filter

19. A control system is generally met with the time response specifications:

a) Damping factor b) Setting time

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

c) Steady state accuracy

d) All of the mentioned

20. Which of the following is not a feature of a good control system?

a) Slow response

b) Sufficient power handling capacity

c) Good stability

d) Good accuracy

21. With negative feedback in a closed loop control system, the system sensitivity to parameter variation:

a) Becomes infinite

b) Becomes zero

c) Decreases

d) Increases

22. Which of the following is the input of a controller?

a) Signal of fixed amplitude not dependent on desired variable value

b) Desired variable value

c) Sensed signal

d) Error signal

23. Effect of feedback on sensitivity is minimum in:

a) Closed loop control system

b) Open and closed loop control systems

c) Open loop control system

d) None of the mentioned

24. Sampling is necessary _____

a) Non automated control system

b) Automated control system

c) In complex control system

d) Where high accuracy is required

25. Which of the motions in actuators are preferred?

a) Rotary

b) Stationary

c) Non-Stationary

d) Translator

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS.

Name of student: T. Priya
Year/Sem: III / V

21/25

AU Reg.No: 912617105003

MULTIPLE CHOICE QUESTIONS (25 X1 =25 MARKS)

1. What is Control System?
   a) Control system is a system in which the output is controlled by varying the input
   b) Control system is a device that will not manage or regulate the behavior of other devices using control loops
   c) Control system is a feedback system that can be both positive and negative
   d) Control System is a system in which the input is controlled by varying the output

2. Which of the following is not the feature of a modern control system?
   a) Correct power level b) No oscillation
   c) Quick response d) Accuracy

3. A control system working under unknown random actions is called _____
   a) Adaptive control system b) Stochastic control system
   c) Computer control system d) Digital data system

4. Which of the following element is not used in an automatic control system?
   a) Final control element b) Sensor
   c) Oscillator d) Error detector

5. A major part of the automatic control theory applies to the:
   a) Casual systems b) Linear Time invariant systems
   c) Time variant systems d) Non-linear systems

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

6. Traffic light system is the example of:
   a) Open-loop system
   b)Closed-loop system
   c) Both (a) and (b)
   d) None of these

7. The impulse response of an RL circuit is:
   a) Parabolic function
   b)Step function
   c) Rising exponential function
   d)Decaying exponential function

8. Which of the following is an open loop control system?
   a) Ward Leonard control
   b) Metadyne
   c) Stroboscope
   d) Field controlled D.C. motor

9. What should be the nature of bandwidth for a good control system?
   a) Small
   b) Medium
   c) Large
   d) All of the mentioned

10. Which of the following statement is true about Feedback control system?
    a) Equally sensitive to forward feedback path parameter changes
    b) Insensitive to both forward and feedback path parameter changes
    c) Less sensitive to feedback path parameter changes than to forward path parameter changes
    d) Less sensitive to forward path parameter changes than to feedback path parameter changes

11. In a stable control system backlash can cause which of the following?
    a) Overdamping
    b) Low-level oscillations
    c) Underdamping
    d) Poor stability at reduced values of open loop gain

12. In a control system the output of the controller is given to
    a) Amplifier
    b) Sensor
    c) Final control element
    d) Comparator

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

13. A Control System with excessive noise, is likely to suffer from which of the following?

a) Oscillations b) Saturation in amplifying stages
c) Loss of gain d) Vibrations

14. In a temperature control system, what conversion in signal takes place?

a) Error to Digital b) Error to Analog
c) Digital to Analog d) Analog to Digital

15. Which of the following control systems have unpredictable & non-repeatable?

a) Stochastic control systems b) Deterministic control systems
c) Static control systems d) Dynamic control systems

16. In pneumatic control systems the control valve used as the final control element converts

a) Position change to pressure signal b) Electric signal to pressure signal
c) Pressure signal to electric signal d) Pressure signal to position change

17. In closed loop control system, what is the sensitivity of the gain of the overall system, M to the variation in G?

a) G/1GH b) 1/1+GH c) G/1+G d) 1/1+G

18. Feedback control system is basically _____

a) Band pass filter b) Band stop filter c) High pass filter d) Low pass filter

19. A control system is generally met with the time response specifications:

a) Damping factor b) Setting time

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

c) Steady state accuracy
d) All of the mentioned

20. Which of the following is not a feature of a good control system?
a) Slow response
b) Sufficient power handling capacity
c) Good stability
d) Good accuracy

21. With negative feedback in a closed loop control system, the system sensitivity to parameter variation:
a) Becomes infinite
b) Becomes zero
c) Decreases
d) Increases

22. Which of the following is the input of a controller?
a) Signal of fixed amplitude not dependent on desired variable value
b) Desired variable value
c) Sensed signal
d) Error signal

23. Effect of feedback on sensitivity is minimum in:
a) Closed loop control system
b) Open and closed loop control systems
c) Open loop control system
d) None of the mentioned

24. Sampling is necessary _____
a) Non automated control system
b) Automated control system
c) In complex control system
d) Where high accuracy is required

25. Which of the motions in actuators are preferred?
a) Rotary
b) Stationary
c) Non-Stationary
d) Translator

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
Kaikkurchi - 622 303. Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.
DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS.

Name of student: V. Sneha
Year/Sem: IV / VII

24/25

AU Reg.No: 912616105010

MULTIPLE CHOICE QUESTIONS (25 X1 =25 MARKS)

1. What is Control System?
   a) Control system is a system in which the output is controlled by varying the input
   b) Control system is a device that will not manage or regulate the behavior of other devices using control loops
   c) Control system is a feedback system that can be both positive and negative
   d) Control System is a system in which the input is controlled by varying the output

2. Which of the following is not the feature of a modern control system?
   a) Correct power level
   b) No oscillation
   c) Quick response
   d) Accuracy

3. A control system working under unknown random actions is called _____
   a) Adaptive control system
   b) Stochastic control system
   c) Computer control system
   d) Digital data system

4. Which of the following element is not used in an automatic control system?
   a) Final control element
   b) Sensor
   c) Oscillator
   d) Error detector

5. A major part of the automatic control theory applies to the:
   a) Casual systems
   b) Linear Time invariant systems
   c) Time variant systems
   d) Non-linear systems

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

6. Traffic light system is the example of:

(a) Open-loop system
b)Closed-loop system
c) Both (a) and (b)
d) None of these

7. The impulse response of an RL circuit is:

a) Parabolic function
b)Step function
c) Rising exponential function
(d) Decaying exponential function

8. Which of the following is an open loop control system?

a) Ward Leonard control
b) Metadyne
c) Stroboscope
(d) Field controlled D.C. motor

9. What should be the nature of bandwidth for a good control system?

a) Small
b) Medium
(c) Large
d) All of the mentioned

10. Which of the following statement is true about Feedback control system?

a) Equally sensitive to forward feedback path parameter changes
b) Insensitive to both forward and feedback path parameter changes
c) Less sensitive to feedback path parameter changes than to forward path parameter changes
(d) Less sensitive to forward path parameter changes than to feedback path parameter changes

11. In a stable control system backlash can cause which of the following?

a) Overdamping
(b) Low-level oscillations
c) Underdamping
d) Poor stability at reduced values of open loop gain

12. In a control system the output of the controller is given to

a) Amplifier
b) Sensor
(c) Final control element
d) Comparator

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

13. A Control System with excessive noise, is likely to suffer from which of the following?

a) Oscillations
b) Saturation in amplifying stages
c) Loss of gain
d) Vibrations

14. In a temperature control system, what conversion in signal takes place?

a) Error to Digital
b) Error to Analog
c) Digital to Analog
d) Analog to Digital

15. Which of the following control systems have unpredictable & non-repeatable?

a) Stochastic control systems
b) Deterministic control systems
c) Static control systems
d) Dynamic control systems

16. In pneumatic control systems the control valve used as the final control element converts

a) Position change to pressure signal
b) Electric signal to pressure signal
c) Pressure signal to electric signal
d) Pressure signal to position change

17. In closed loop control system, what is the sensitivity of the gain of the overall system, M to the variation in G?

a) G/1GH
b) 1/1+GH
c) G/1+G
d) 1/1+G

18. Feedback control system is basically _____

a) Band pass filter
b) Band stop filter
c) High pass filter
d) Low pass filter

19. A control system is generally met with the time response specifications:

a) Damping factor
b) Setting time

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303. Pudukkottai Dt.

c) Steady state accuracy
(d) All of the mentioned

20. Which of the following is not a feature of a good control system?
(a) Slow response
b) Sufficient power handling capacity
c) Good stability
d) Good accuracy

21. With negative feedback in a closed loop control system, the system sensitivity to parameter variation:
a) Becomes infinite
b) Becomes zero
(c) Decreases
d) Increases

22. Which of the following is the input of a controller?
a) Signal of fixed amplitude not dependent on desired variable value
b) Desired variable value
c) Sensed signal
(d) Error signal

23. Effect of feedback on sensitivity is minimum in:
(a) Closed loop control system
b) Open and closed loop control systems
c) Open loop control system
d) None of the mentioned

24. Sampling is necessary _____
a) Non automated control system
b) Automated control system
c) In complex control system
(d) Where high accuracy is required

25. Which of the motions in actuators are preferred?
(a) Rotary
b) Stationary
c) Non-Stationary
d) Translator

Dr. S.THILAGAVATHI M.E.,PH.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

MARK SHEET FOR VALUE ADDED COURSE
ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS

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 & III	10	100	20	80	90
2	912618105002	AASHA R	II & III	10	100	23	92	96
3	912618105003	AGARI S	II & III	9	90	20	80	85
4	912618105004	JEEVITHA R	II & III	10	100	24	96	98
5	912618105005	NISHA K	II & III	10	100	21	84	92
6	912618105006	RAMANA R	II & III	9	90	24	96	93
7	912618105007	SNEHA S	II & III	10	100	20	80	90
8	912618105301	VINOTHINI V	II & III	10	100	23	92	96
9	912617105001	NAZEERA BANU I	III & V	10	100	20	80	90
10	912617105002	PARTHIKA S	III & V	10	100	24	96	98
11	912617105003	PRIYA T	III & V	10	100	21	84	92
12	912617105004	SAJINA K	III & V	10	100	23	92	96
13	912617105005	SELSIYA R	III & V	10	100	24	96	98
14	912617105006	THENMOZHI J	III & V	10	100	20	80	90
15	912617105007	VANITHA E	III & V	10	100	20	80	90
16	912617105302	SIYAMALADEVI S	III & V	10	100	24	96	98
17	912616105001	ABIRAMI M	IV & VII	10	100	21	84	92

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

18	912616105002	AJITHA R	IV & VII	10	100	20	80	90
19	912616105003	GIRIJA V	IV & VII	10	100	24	96	98
20	912616105006	JOTHIKA A	IV & VII	10	100	21	84	92
21	912616105007	KARUNAMBIGAI A	IV & VII	10	100	23	92	96
22	912616105008	PRASANNA K	IV & VII	10	100	24	96	98
23	912616105009	SARANYA G	IV & VII	10	100	20	80	90
24	912616105010	SNEHA V	IV & VII	9	90	24	96	93
25	912616105011	SUBHASRI T	IV & VII	10	100	23	92	96
26	912616105013	SURIYAKALA R	IV & VII	10	100	20	80	90
27	912616105301	MAHESWARI R	IV & VII	10	100	24	96	98
28	912616105302	PRINCY ROSELIN I	IV & VII	10	100	21	84	92

VAC COORDINATOR

HoD/EEE

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

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.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkuruchi - 622 303.

29/11/19
HoD/EEE
HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

Cc:

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

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

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	

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303 (P

VAC COORDINATOR

HoD/EEE

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI
PUDUKKOTTAI - 622 303.

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

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR

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

VAC COORDINATOR

HoD/EEE

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

KAIKKURICHI, PUDUKKOTTAI-622 303

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. Jeevitha
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

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303. Pudukkottai Dt.

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

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

VAC COORDINATOR

HoD/EEE

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
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** 13/12/19 | **Principal** 17/12/19

HOD EEE
SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

PRINCIPAL
SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
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.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

G.VIKNESHWARAN
MANAGING DIRECTOR

PRINCIPAL
SBECW

PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukottai-01.
Mail:pvsolarpowertech@gmail.com
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.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

G.VIKNESHWARAN
MANAGING DIRECTOR

PRINCIPAL
SBECW

PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukottai-01.
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.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

G.VIKNESHWARAN
MANAGING DIRECTOR

PRINCIPAL
SBECW

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
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:
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.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt

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.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

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

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
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. Aatha
Year/Sem: II / IV

24/25

AU Reg.No: 912618105002

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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.

Dr. S.THILAGAVATHI M.E., Ph.D.
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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
(c) Line focusing collector (d) Paraboloid dish collector

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
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: 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.

(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)

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

(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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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
(c) Line focusing collector (d) Paraboloid dish collector

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
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: V. Sneha
Year/Sem: IV | VIII

22/25

AU Reg.No: 912616105010

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.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

(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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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.

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

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
(c) Line focusing collector
(d) Paraboloid dish collector

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai- 622 303.

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

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

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
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303.

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai, Tamil Nadu – 622 303, India

Criteria 2	Teaching-Learning and Evaluation	350

Key Indicator- 2.3. Teaching- Learning Process (40)

2019-2020

ELECTRICAL AND ELECTRONICS ENGINEERING

PARTICIPATIVE LEARNING

SYMPOSIUM AND WORKSHOP

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)
Kaikkurichi, Pudukkottai, Tamilnadu – 622 303, India

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PARTICIPATIVE LEARNING(SYMPOSIUM, SEMINAR, WORKSHOP)

ACADEMIC YEAR 2019-2020

S.NO	REGISTER NO	NAME	YEAR/ SEM	NAME OF THE LEARNING METHOD
1	912617105005	SELSIYA R	III/V	**PARTICIPATIVE LEARNING-** WORKSHOP
	912617105006	THENMOZHI J		
	912617105007	VANITHA E		
2	912616105001	ABIRAMI M	IV/VII	
	912616105008	PRASANNA K		
	912616105010	SNEHA V		
	912616105013	SURIYAKALA R		
3	912616105008	PRASANNA K	IV/VIII	**PARTICIPATIVE LEARNING-** SYMPOSIUM
	912616105010	SNEHA V		

HoD/EEE

HOD EEE
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI,
PUDUKKOTTAI - 622 303

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

CHENDHURAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC with 'B+' Grade
Lena Vilaku, Madurai Road, Pilivalam (Po), Pudukkottai - 622 507
7373755574 www.chendhuran.ac.in

Department of Electrical and Electronics Engineering

One day Workshop on

"Power Quality Monitoring, Analysing and Troubleshooting"

Certificate

This is to Certify that Dr./Mr./Ms SELSIYA R

from SRI BHARARHI ENGINEERING COLLEGE FOR WOMEN

has participated in the One day Workshop held on 09.08.2019 at our college.

PAPER PRESENTATION

FLUKE HEAD HOD PRINCIPAL CEO CHAIRMAN

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalkkurchi - 622 303, Pudukkottai Dt.

CHENDHURAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC with 'B+' Grade
Lena Vilaku, Madurai Road, Pillivalam (Po), Pudukkottai - 622 507
7373755574 www.chendhuran.ac.in

Department of Electrical and Electronics Engineering

One day Workshop on

"Power Quality Monitoring, Analysing and Troubleshooting"

Certificate

This is to Certify that Dr./Mr./Ms THENMOZHI J

from SRI BHARARHI ENGINEERING COLLEGE FOR WOMEN

has participated in the One day Workshop held on 09.08.2019 at our college.

PAPER PRESENTATION

FLUKE HEAD HOD PRINCIPAL CEO CHAIRMAN

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalkkurchi - 622 303, Pudukkottai Dt.

CHENDHURAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC with 'B+' Grade

Lena Vilaku, Madurai Road, Pilivalam (Po), Pudukkottai - 622 507

7373755574 www.chendhuran.ac.in

Department of Electrical and Electronics Engineering

One day Workshop on

"Power Quality Monitoring, Analysing and Troubleshooting"

Certificate

This is to Certify that Dr./Mr./Ms VANITHA E

from SRI BHARARHI ENGINEERING COLLEGE FOR WOMEN

has participated in the One day Workshop held on 09.08.2019 at our college.

PAPER PRESENTATION

FLUKE HEAD HOD PRINCIPAL CEO CHAIRMAN

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalkkurchi - 622 303, Pudukkottai Dt.

CHENDHURAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC with 'B+' Grade

Lena Vilaku, Madurai Road, Pilivalam (Po), Pudukkottai - 622 507

7373755574 www.chendhuran.ac.in

Department of Electrical and Electronics Engineering

One day Workshop on

"Power Quality Monitoring, Analysing and Troubleshooting"

Certificate

This is to Certify that Dr./Mr./Ms ABIRAMI M

from SRI BHARARHI ENGINEERING COLLEGE FOR WOMEN

has participated in the One day Workshop held on 09.08.2019 at our college.

PAPER PRESENTATION

FLUKE HEAD HOD PRINCIPAL CEO CHAIRMAN

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

CHENDHURAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC with 'B+' Grade
Lena Vilaku, Madurai Road, Pilivalam (Po), Pudukkottai - 622 507
7373755574 www.chendhuran.ac.in

Department of Electrical and Electronics Engineering

One day Workshop on

"Power Quality Monitoring, Analysing and Troubleshooting"

Certificate

This is to Certify that Dr./Mr./Ms PRASANNA K

from SRI BHARARHI ENGINEERING COLLEGE FOR WOMEN

has participated in the One day Workshop held on 09.08.2019 at our college.

PAPER PRESENTATION

FLUKE HEAD HOD PRINCIPAL CEO CHAIRMAN

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalikkurchi - 622 303, Pudukkottai Dt.

CHENDHURAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC with 'B+' Grade
Lena Vilaku, Madurai Road, Pilivalam (Po), Pudukkottai - 622 507
7373755574 www.chendhuran.ac.in

Department of Electrical and Electronics Engineering

One day Workshop on

"Power Quality Monitoring, Analysing and Troubleshooting"

Certificate

This is to Certify that Dr./Mr./Ms SNEHA V

from SRI BHARARHI ENGINEERING COLLEGE FOR WOMEN

has participated in the One day Workshop held on 09.08.2019 at our college.

PAPER PRESENTATION

FLUKE HEAD HOD PRINCIPAL CEO CHAIRMAN

Dr. S.THILAGAVATHI M.E., Ph.D.
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

CHENDHURAN
COLLEGE OF ENGINEERING AND TECHNOLOGY

Accredited by NAAC with 'B+' Grade
Lena Vilaku, Madurai Road, Pilivalam (Po), Pudukkottai - 622 507
7373755574 www.chendhuran.ac.in

Department of Electrical and Electronics Engineering

One day Workshop on

"Power Quality Monitoring, Analysing and Troubleshooting"

Certificate

This is to Certify that Dr./Mr./Ms SURIYAKALA R

from SRI BHARARHI ENGINEERING COLLEGE FOR WOMEN

has participated in the One day Workshop held on 09.08.2019 at our college.

PAPER PRESENTATION

FLUKE HEAD HOD PRINCIPAL CEO CHAIRMAN

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kalkkurchi - 622 303, Pudukkottai Dt.

SUDHARSAN ENGINEERING COLLEGE

SATHIYAMANGALAM,PUDUKKOTTAI-622501

(Approved by AICTE & Affiliated to Anna University)

SWARTEK-2020

A NATIONAL LEVEL TECHNICAL SYMPOSIUM

CERTIFICATE OF EVENT

This is to certify that Mr/Ms .....K.PRASANNA.....*of*

.....SRI....BHARATHI....ENGINEERING..COLLEGE....FOR...WOMEN.....*has participated*

in the event of .....PAPER...PRESENTATION.....*held*

on 22/02/2020 and has won the.....SECOND..... *prize.*

Co-ordinator *Advisor* *Principal*

Dr. S.THILAGAVATHI M.E.,Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

SUDHARSAN ENGINEERING COLLEGE

SATHIYAMANGALAM,PUDUKKOTTAI-622501

(Approved by AICTE & Affiliated to Anna University)

SUARTEK-2020

A NATIONAL LEVEL TECHNICAL SYMPOSIUM

CERTIFICATE OF EVENT

This is to certify that Mr/Ms .....V.SNEHA.....*of*

...SHRI...BHARATHI...ENGINEERING....COLLEGE....FOR.....WOMEN.....*has participated*

in the event of .....PAPER....PRESENTATION.....*held*

on 22/02/2020 and has won the.....SECOND..... *prize.*

Co-ordinator

Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.

Advisor

Principal