

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



IQAC

Internal Quality Assurance Cell

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	-

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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



(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

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					

Cc:

• Principal's Office

IQAC Coordinator

• Class In charges - II, III & IV-year of EEE

• II, III & IV-year EEE Students

Notice Board

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

Date: 14/06/2019

Dr. S.THILAGAVATHI M.E., Ph.D., PRINCIPAL



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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 HOÙRS	30H	OUR		

VAC COORDINATOR

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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

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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

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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

				24.	06.19	25.	06.19	26.	06.19	27.	06.19	28.0	06.19	NO. OF	
S.NO	REG. NO	NAME	YEAR/ SEM	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	CLASS ATTENDED	SIGN OF STUDENT
1	912618105001	AARTHI G	II & III	1	1	1	1	1	/	/	1	1	1	10	Gr. Auth
2	912618105002	AASHA R	II & III	1	1	/	/	1	1	1	/	1	/	40	R. Aasha
3	912618105003	AGARI S	II & III	1	a	/	1	1	1	1	/	1	1	09	e Agami
4	912618105004	JEEVITHA R	II & III	/	1	/	/	1	1	1	/	1	1	10	Riethas
5	912618105005	NISHA K	11 & 111	1	1	/	/	1	1	/	/	1	1	1-	of Orthon
6	912618105006	RAMANA R	II & III	/	1	/	/	1	a	/	1	1	/	09	R. Ranas
7	912618105007	SNEHA S	II & III	1	1	1	1	1	1	1	/	/	1	10	S. Encha

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8	912618105301	VINOTHINI V	II & III	/	1	/	1	1	,	1	/	/	,	10	V. V99
9	912617105001	NAZEERA BANU I	III & V	1	/	1	1	1	1	1	1	,	,	10	1.00mpalar
10	912617105002	PARTHIKA S	III & V	1	/	1	1	1	/	1	1	,	1	10	3. Pentha
11	912617105003	PRIYA T	III & V	1	1	1	1	/	1	1	1	,	1	10	Propo
12	912617105004	SAJINA K	III & V	1	1	1	1	1	1	1	/	1	,	10	
13	912617105005	SELSIYA R	III & V	1	1	1	/	1	1	1	1	/	1	10	K. Sajina L. Salsiya
14	912617105006	THENMOZHI J	III & V	1	1	1	1	1	/	1	1	1	,	10	J. Mennti
15	912617105007	VANITHA E	III & V	1	1	1	/	1	1	1	1	/	1	10	E. Vanilta
16	912617105302	SIYAMALADEVI S	III & V	1	1	1	1	1	1	1	1	1	1	10	5. Symbol.
17	912616105001	ABIRAMI M	IV & VII	1	1	/	1	1	1	1	1	1	1	10	Abirain
18	912616105002	AJITHA R	IV & VII	1	1	1	/	1	1	1	1	1	1	10	R.o.jran
19	912616105003	GIRIJA V	IV & VII	1	1	/	1	1	/	1	/	/	1	10	Ginja
20	912616105006	JOTHIKA A	IV & VII	1	1	1	1	/	1	1	1	/	1	10	Thura
21	912616105007	KARUNAMBIGAI A	IV & VII	1	1	J	/	/	1	,	1	1	1	10	Komenzi
22	912616105008	PRASANNA K	IV & VII	1	1	/	/	1	1	1	/	1	1	10	Frasamon
23	912616105009	SARANYA G	IV & VII	/	1	1	1	,	1	1	/	1	1	10	Cr. Sosoupa

or. S.THILAGAVATHI M.E., Ph.D.,
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Kaikkurchi - 622 303, Pudukkottai Dt.

24	912616105010	SNEHA V	IV & VII	1	a	/	1	1	1	/	/	1	/	09	Siella
25	912616105011	SUBHASRI T	IV & VII	/	/	/	1	1	/	1	/	./	/	10	Subashii
26	912616105013	SURIYAKALA R	IV & VII	/	/	/	1	1	1	1	/	/	1	10	R. Soniyahl
27	912616105301	MAHESWARI R	IV & VII	1	/	1	1	1	/	1	1	1	/	10	Mahale
28	912616105302	PRINCY ROSELIN I	IV & VII	/	/	/	/	1	1	1	1	1	1	10	Princy m

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SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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Report on Value Added Course

Title:

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS

1.K.Kamaraj,

2. R.Anbalagan

Resource Person:

Co-Founder,

Senior Engineer

Power Integrated Solutions PVT LTD,

#10A/3 Radhakrishna Colony, Sastri Road, Thennur, Trichy-17.

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 <u>28</u> 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

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KAIKKURICHI, PUDUKKOTTAI - 622 000. Principal

DPINCIPAL

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PUDUKKOTTAI DISTRICT

Dr. S.THILAGAVATHTM.E., Ph.D.,
PRINCIPAL

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 valueadded 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

Power Integrated Solutions

HOD/EEEDr. S.THILAG

SBECW

M.E.,Ph.D.,

Kaikkurchi - 622 303, Pudukkottai Dt.

SBECW

PRINCIPAL

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 valueadded 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 Man

HR MANAGER

Power Integrated Solutions

HOD/EEE Dr. S.THILAGAVATHIME, Ph.D., PRINCIPAL

SBECW

Kaikkurchi - 622 303 Pudukkotta Dt.

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 <u>SUBHASRI T</u>, Reg No <u>912616105011</u> 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

Power Integrated Solutions

Blandy

SBECW

HOD/EEE Dr. S.THILAGAVATHIM. E., Ph.D., PRINCIPAL

PRINCIPAL

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Name of student:

Year/Sem:

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

ELECTRICAL CONTROL DESIGN IN REAL TIME APPLICATIONS.

AU Reg.No:

MULT	TIPI	LE 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	at 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
			which the input is controlled by varying the output
	2.	Which of the following is not the	e 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 co	entrol 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 PRINCIPAL SRI BHARATHI ENGINEERING
			COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai Dt.



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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

6.	Traffic light system is the example	e 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 cir	reuit is:
	a) Parabolic function	b)Step function
	c) Rising exponential function	d)Decaying exponential function
8.	Which of the following is an open	
	a) Ward Leonard control	b) Metadyne
	c) Stroboscope	d) Field controlled D.C. motor
9.	What should be the nature of band	lwidth 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 fee	
	b) Insensitive to both forward and	
		parameter changes than to forward path parameter
	changes	parameter enames of the real parameter
		parameter changes than to feedback path parameter
	changes	, , , , , , , , , , , , , , , , , , ,
11.		sh can cause which of the following?
		b) Low-level oscillations
		d) Poor stability at reduced values of open loop
	gain	
12.	In a control system the output of t	
		b) Sensor
	c) Final control element	Dr. S.THILAGAVATHI M.E., Ph.D.,

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a) Damping factor

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13. A Control System with excessiv	ve noise, is li	kely to suffer from whic	h of the
following?			
a) Oscillations	b) Saturation	on in amplifying stages	
c) Loss of gain	d) Vibration	ns	
14. In a temperature control system.	, what conve	rsion in signal takes plac	ce?
a) Error to Digital	1	b) Error to Analog	
c) Digital to Analog		d) Analog to Digital	
15. Which of the following control s	systems have	e unpredictable & non-re	epeatable?
a) Stochastic control systems		b) Deterministic contro	l systems
c) Static control systems		d) Dynamic control sys	tems
16. In pneumatic control systems the	e control val	ve used as the final cont	rol element
converts			ior croment
a) Position change to pressure si	gnal	b) Electric signal to pro	essure signal
c) Pressure signal to electric sign	nal	d) Pressure signal to po	osition change
17. In closed loop control system, w	hat is the ser	nsitivity of the gain of th	e 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 basic	cally		
	stop filter	c) High pass filter	d) Low pass
filter		, 01	
10. A control graters is consult			11
19. A control system is generally me	et with the tir	ne response specification	ns:

b) Setting time
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c) Non-Stationary

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	E AND ELECTRONICS ENGINEERING
c) Steady state accuracy	d) All of the mentioned
20. Which of the following is not a featur	re 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 lo	
parameter variation:	op control system, the system sensitivity to
a) Becomes infinite	h) Dagamas ass
c) Decreases	b) Becomes zero
o, zecreases	d) Increases
22. Which of the following is the input of	a controller?
 a) Signal of fixed amplitude not depen 	dent on desired variable value
b) Desired variable value	
c) Sensed signal	
d) Error signal	
23. Effect of feedback on sensitivity is mir	nimum 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
	ingli accuracy is required
25. Which of the motions in actuators are p	preferred?
a) Rotary	b) Stationary

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d) Translator

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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	С	5	b
6	a	7	d	8	d	9	С	10	d
11	b	12	С	13	b	14	d	15	a
16	d	17	b	18	d	19	d	20	a
21	с	22	d	23	a	24	d	25	a

Dr. S.THILAGAVATHI M. Ph.D.

PRINCIPAL



DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

	ELECTRICAL CONTROL D	ESIGN IN REAL I	IME APPLICAT	TIONS.
Name of s Year/Sem	student: G1:AARTH1 : 11 / 111	(20)	AU Reg.No:	912618 [0500]
MULTIPI	LE CHOICE QUESTIONS (25	X1 =25 MARKS)		
1.	What is Control System? a) Control system is a system in b) Control system is a device that devices using control loops c) Control system is a feedback so d) Control System is a system in	at will not manage or system that can be bo	regulate the behave	vior of other
2.	Which of the following is not the a) Correct power level c) Quick response	b No oscillation d) Accuracy	control system?	
3.	A control system working under a) Adaptive control system c) Computer control system	unknown random act b) Stochastic contro d) Digital data syst	ol system	
4.	Which of the following element is a) Final control element Socillator	s not used in an auto b) Sensor d) Error detector	matic control syst	em?

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

a) Casual systems

c) Time variant systems

Linear Time invariant systems d) Non-linear systems Dr. S.THILAGAVATH M.E., Ph.D., PRINCIPAL



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6.	Traffic light system is the exam	pple of:
	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	Decaying exponential function
8.	Which of the following is an op	en loon control system?
	a) Ward Leonard control	b) Metadyne
	c) Stroboscope	d) Field controlled D.C. motor
		a) Field controlled D.C. motor
9.		ndwidth for a good control system?
	a) Small b) Medium	C) Large d) All of the mentioned
10.	Which of the following statemer	nt is true about Feedback control system?
		eedback path parameter changes
		nd feedback path parameter changes
		h parameter changes than to forward path parameter
	changes	b and the second partition of
	Less sensitive to forward path	parameter changes than to feedback path parameter
	changes	parameter
11		
		ash can cause which of the following?
	a) Overdamping	b) Low-level oscillations
	c) Underdamping	d) Poor stability at reduced values of open loop
	gain	
	In a control system the output of	the controller is given to
	a) Amplifier	b) Sensor
(Final control element	d) Comparator
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13. A Control System with exc	cessive 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 sy	stem, what conversion in signal takes place?
a) Error to Digital	b) Error to Analog
c) Digital to Analog	Analog to Digital
15. Which of the following cor	ntrol systems have unpredictable & non-repeatable?
Stochastic control system	
c) Static control systems	d) Dynamic control systems
16. In pneumatic control system convertsa) Position change to pressuc) Pressure signal to electric	, and the second second
17. In closed loop control system M to the variation in G?	m, what is the sensitivity of the gain of the overall system,
a) G/1GH b) 1/1+GH	c) G/1+G d) 1/1+G
18. Feedback control system isa) Band pass filterb) B	basically and stop filter c) High pass filter d) Low pass
filter	the step little c) ringin pass litter way how pass
19. A control system is generalla) Damping factor	y met with the time response specifications: b) Setting time

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

c) Steady state accuracy	d) All of the mentioned
20. Which of the following is not a feature	e 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 loc parameter variation:	p control system, the system sensitivity to
a) Becomes infinite	b) Becomes zero
c) Decreases	d) Increases
22. Which of the following is the input of a	a controller?
a) Signal of fixed amplitude not depend	dent on desired variable value
b) Desired variable value	
c) Sensed signal	
d) Error signal	
23. Effect of feedback on sensitivity is min	imum 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
	o required
25. Which of the motions in actuators are pr	referred?
a) Rotary	b) Stationary
c) Non-Stationary	d) Translator

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ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

	ELECTRICAL CONTROL DES	SIGN IN REAL TIME APPLICATIONS.
Name of st Year/Sem:	udent: T. Priya	AU Reg.No: 91261710
MULTIPL	E CHOICE QUESTIONS (25 X1	=25 MARKS)
	b) Control system is a device that devices using control loops	hich the output is controlled by varying the input will not manage or regulate the behavior of other stem that can be both positive and negative
	d) Control System is a system in w	which the input is controlled by varying the output
2.		Deature of a modern control system? (b) No oscillation d) Accuracy
3.	A control system working under u	nknown random actions is called
		b) Stochastic control system d) Digital data system
4.	Which of the following element is a) Final control element c) Oscillator	not used in an automatic control system? b) Sensor d) Error detector

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

a) Casual systems

c) Time variant systems

b) Linear Time invariant systems

d) Non-linear systems

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6.	Traffic light system is the examp	le 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 c	ircuit is:
	a) Parabolic function	b)Step function
	c) Rising exponential function	d)Decaying exponential function
8.	Which of the following is an ope	V
	a) Ward Leonard control	b) Metadyne
	c) Stroboscope	d) Field controlled D.C. motor
9.	What should be the nature of ban	dwidth for a good control system?
	a) Small b) Medium	c) Large d) All of the mentioned
10	Which of the following statemen	t is true about Feedback control system?
10.	a) Equally sensitive to forward fe	
		d feedback path parameter changes
		n parameter changes than to forward path parameter
	changes	
	d) Less sensitive to forward path	parameter changes than to feedback path parameter
	changes	
11	T	
11.		sh can cause which of the following?
	a) Overdamping	b) Low-level oscillations
	c) Underdamping	d) Poor stability at reduced values of open loop
10	gain	
12.	In a control system the output of	
	a) Amplifier	b) Sensor
	c) Final control element	d) Comparator Dr. S.THILAGAVATHI (E.,Ph.C PRINCIPAL



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13. A Control System with excessive following?	ve noise, is likely to suffer from which of the
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	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 converts	e control valve used as the final control element
a) Position change to pressure si	ignal b) Electric signal to pressure signal
c) Pressure signal to electric sign	
M to the variation in G?	what is the sensitivity of the gain of the overall system,
a) G/1GH b) 1/1+GH	c) G/1+G d) 1/1+G
18. Feedback control system is basic	cally
	stop filter c) High pass filter d) Low pass
filter	
	et with the time response specifications:
a) Damping factor	b) Setting timeDr. S.THILAGAVATHI M.E.,Ph.D PRINCIPAL SRI BHARATHI ENGINEERING

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c) Steady state accuracy	All of the mentioned
20. Which of the following is not a feature	are 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 le parameter variation:	oop control system, the system sensitivity to
a) Becomes infinite	b) Becomes zero
c) Decreases	d) Increases
22. Which of the following is the input of a) Signal of fixed amplitude not depe	
b) Desired variable value	
c) Sensed signal	
d Error signal	
23. Effect of feedback on sensitivity is m	ninimum in:
a) Closed loop control system systems	b) Open and closed loop control
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	e preferred?
a) Rotary	b) Stationary
c) Non-Stationary	d) Translator

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ACADEMIC YEAR 2019-2020 / ODD SEMESTER

VALUE ADDED COURSE

	ELECTRICAL CONTROL I	DESIGN IN REAL TI	ME APPLICATIONS.
Name of s Year/Sem	tudent: V. Sneha : IV/VII	24	AU Reg.No: 912616105010
MULTIPI	LE CHOICE QUESTIONS (25	X1 =25 MARKS)	
1.	What is Control System?		
	(a) Control system is a system in	n which the output is co	entrolled by varying the input
	b) Control system is a device th		
	devices using control loops	iat will not manage of t	egulate the behavior of other
	c) Control system is a feedback	system that can be bot	h nositive and negative
	d) Control System is a system i		
		and input is con	autoned by varying the output
2.	Which of the following is not the	ne feature of a modern	control system?
	a) Correct power level	(b) No oscillation	
	c) Quick response	d) Accuracy	
3.	A control system working unde	r unknown random acti	ons is called
	a) Adaptive control system	(b) Stochastic contro	
	c) Computer control system	d) Digital data syste	m
4.	Which of the following element	is not used in an auton	natic control system?
	a) Final control element	(6) Sensor	/
	c) Oscillator	d) Error detector	
5.	A major part of the automatic co	ontrol theory applies to	the:
	a) Casual systems	b) Linear Time invari	

b)Linear Time invariant systems

d) Non-linear systems

c) Time variant systems

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6.	Traffic light system is the exam	ple 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	Decaying exponential function
8.	Which of the following is an ope	en loop control system?
	a) Ward Leonard control	b) Metadyne
	c) Stroboscope	Field controlled D.C. motor
9.	What should be the nature of bar	ndwidth for a good control system?
	a) Small b) Medium	(c) Large d) All of the mentioned
10	Which call the	
10.		nt is true about Feedback control system?
	a) Equally sensitive to forward f	
		d feedback path parameter changes
		h parameter changes than to forward path parameter
	changes	
		parameter changes than to feedback path parameter
	changes	
11.	In a stable control system backla	ash 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	f the controller is given to
	a) Amplifier	b) Sensor
3	Final control element	d) Comparator
		THE RESERVE TO ARREST ARRESTS AND ARRESTS AND A RESERVE ARE A STATE OF A STAT



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13. A	A Control System with excessive	ve noise, is likely to suffer from which of the
	following?	
а	a) Oscillations	(b) Saturation in amplifying stages
c	c) Loss of gain	d) Vibrations
1.4 T		
		, what conversion in signal takes place?
	n) Error to Digital	b) Error to Analog
C	e) Digital to Analog	(d) Analog to Digital
15. V	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. Ii	n pneumatic control systems th	e control valve used as the final control element
	onverts	The state of the s
) Position change to pressure si	gnal b) Electric signal to pressure signal
) Pressure signal to electric sign	, , , , , , , , , , , , , , , , , , , ,
	, i resoure signar to electric sign	Tressure signal to position change
17. Iı	n closed loop control system, w	that is the sensitivity of the gain of the overall system,
N	If to the variation in G?	
a) G/1GH () 1/1+GH	c) G/1+G d) 1/1+G
18 F	eedback control system is basic	pally
	lter 0) Band	stop filter c) High pass filter (d) Low pass
11	nter	
		$\Lambda_1 \sim 0$
19. A	control system is generally me	et with the time response specifications:
a)) Damping factor	b) Setting time

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c) Steady state accuracy	(d) All of the mentioned
20. Which of the following is not a featur	e of a good control system?
3 Slow response	b) Sufficient power handling capacity
c) Good stability	d) Good accuracy
21. With negative feedback in a closed looparameter variation:	op control system, the system sensitivity to
a) Becomes infinite	b) Becomes zero
© Decreases	d) Increases
 22. Which of the following is the input of a) Signal of fixed amplitude not depend b) Desired variable value c) Sensed signal d) Error signal 	
23. Effect of feedback on sensitivity is mi	nimum in:
a)Closed loop control system systems	b) Open and closed loop control
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	(1) Where high accuracy is required
25. Which of the motions in actuators are	preferred?
(1) Rotary	b) Stationary
c) Non-Stationary	d) Translator

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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		ACE 50%		-MCQ 6(B)	OVERALL MARK
				No of Session Attended	MARKS	No of Correct Answer	MARKS	(A+B)
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

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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

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DEPARTMENT CIRCULAR

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

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- Class In charges II, III & IV-year of EEE
- II, III & IV-year EEE Students
- Notice Board

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Date: 29/11/2019

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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 H	OUR

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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

VAC COORDINATOR

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ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

ATTENDANCE SHEET FOR VALUE ADDED COURSE

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

				09.	12.19	10.	12.19	11.	12.19	12.1	12.19	13.1	12.19	14.1	2.19	NO. OF	SIGN OF
S.NO	REG. NO	NAME	YEAR/ SEM	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	F.N	A.N	CLASS ATTENDED	SIGN OF STUDENT
1	912618105001	AARTHI G	II & IV	/	/	1	1	1	1	1	1	/	/	1	1	12	G1. tuthi
2	912618105002	AASHA R	II & IV	/	/	1	/	1	1	1	1	1	/	1	1	12	R. Aashao
3	912618105003	AGARI S	II & IV	/	1	1	1	1	/	1	/	/	1	1	1	10	S. Agrapi
4	912618105004	JEEVITHA R	II & IV	1	a	1	1	1	1	1	1	/	/	1	1	11	Ricethas
5	912618105005	NISHA K	II & IV	/	1	1	1	/	1	1	1	1	/	1	1	12	J. Duhuj
6	912618105006	RAMANA R	II & IV	/	1	1	1	/	1	1	1	1	1	1	1	12	R. Ranama
7	912618105007	SNEHA S	II & IV	/	/	1	1	1	1	/	1	1	1	1	1	12	S. Sreha

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8	912618105301	VINOTHINI V	II & IV	./	1	1	1	1	/	1	1	1	/	1	1	12	V. Vin
9	912617105001	NAZEERA BANU I	III & VI	a	a	1	1	1	/	1	1	1	1	1	1	10	2 spormation
10	912617105002	PARTHIKA S	III & VI	/	/	1	1	1	1	1	1	1	1	1	1	12	S. Rultur
11	912617105003	PRIYA T	III & VI	1	1	1	1	1	1	1	,	1	/	1	1	12	7.92
12	912617105004	SAJINA K	III & VI	1	1	1	/	1	1	1	,	/	1	1	1	12	K. Sajim
13	912617105005	SELSIYA R	III & VI	1	1	1	1	/	1	1	1	1	/	1	1	12	2. Selsiye
14	912617105006	THENMOZHI J	III & VI	1	1	1	/	/	/	1	1	1	/	1	/	12	J. Phendi
15	912617105007	VANITHA E	III & VI	1	1	1	,	1	1	1	1	1	/	1	1	12	E. Vanilla
16	912617105302	SIYAMALADEVI S	III & VI	1	/	1	1	1	/	/	/	1	/	1	1	12	5. Syemator
17	912616105001	ABIRAMI M	IV & VIII	/	1	1	1	1	á	1	1	1	1	1	1	11	toronir
18	912616105002	AJITHA R	IV & VIII	/	/	1	/	1	/	/	1	/	1	1	1	12	Rajta
19	912616105003	GIRIJA V	IV & VIII	1	1	/	1	1	/	/	/	1	1	/	1	12	yinja
20	912616105006	JOTHIKA A	IV & VIII	/	1	1	1	1	1	1	1	1	/	1	1	12	othica
21	912616105007	KARUNAMBIGAI A	IV & VIII	1	a	1	,	1	1	/	1	1	/	1	1	11	Koewadani
22	912616105008	PRASANNA K	IV & VIII	1	1	1	,	1	/	1	1	1	/	/	1	12	Frazanna
23	912616105009	SARANYA G	IV & VIII	1	1	1	1	1	1	1	1	1	/	1	/	12.	G. Soscupa

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24	912616105010	SNEHA V	IV & VIII	1	/	1	1	1	1	1	1	1	1	/	1	12	Archa
25	912616105011	SUBHASRI T	IV & VIII	/	/	1	1	1	1	1	1	/	1	1	1	12	Subashi
26	912616105013	SURIYAKALA R	IV & VIII	/	1	/	1	/	1	1	1	1	/	1	1	12	R. Sin yanka
27	912616105301	MAHESWARI R	IV & VIII	a	1	1	1	1	/	1	1	1	a	1	/	09	Malush
28	912616105302	PRINCY ROSELIN I	IV & VIII	/	/	/	/	/	1	1	1	1	1	/	1	12	Princy July

VAC COORDINATOR

Dr. S.THILAGAVATHI M. K., Ph.D.,
PRINCIPAL

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KAIKKURICHI,

PUDUKKOTTAI - 622 303.

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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

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

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KAIKKURICHI. PUDUKKOTTAI - 622 303. Principa

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PUDUKKOTTAI DISTRICT

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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. MANAGING DIRECTOR PRINCIPAL

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G.VIKNESHWARAN

PRINCIPAL

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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., G.VIKNESHWARAN
PRINCIPAL
MANAGING DIRECTOR

SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkottai Dt. PRINCIPAL

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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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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 m	nA/cm2 (d) 60-100 mA/cm2
3 photo voltaic devices in the form of	of thin films.
(a) Cadmium Telluroide (b) Cadmium oxide (c) C	admium sulphide (d) Cadmium sulphate
4. A module in a solar panel refers to	
(a) Series arrangement of solar cells. cells. (c) Series and parallel arrangement of solar cells.	(b) Parallel arrangement of solar ls. (d) None of the above.
5. Photovoltaic cell or solar cell converts	
.,	magnetic radiation directly into electricity diation into kinetic energy.
6. Why are inverters required on the modern PV Syst	tems?
(a) To provide metering for the utility (b) To convert (AC)	et direct current (DC) to alternating current
(c) To convert light to electricity (d) To control	charge discharge battery.

Dr. S.THILAGAVATHI M.E., Ph.D.,
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7. Which components as	re 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 incomfull (c) Charges the batter			f the charging w e (d) a,b,c	hen battery is	
9. For grid-connected P grid?	V systems, such para	ameters should be mat	tched to the rang	es used by the	
(a) Current above.	(b) Voltage	(c) Frequer	ncy	(d) All	
10. Solar power condition	oning is an importan	t to ensure that,			
(a) The energy generate(b) The serves to balance(c) The distribution of p(d) The electric power serves11. Which metal is used	ce the system and to bower between off-g generated by PV mo	make it sustainably ogrid and transmission podules goes through a s	perational paths.	rmations.	
(a) Gold (b) Iron	(c) Alumin	ium (d) Silicor	1		
12. Full form of FF in that a) Form factor		Face factor d) Fire factor		
13. Standard testing con	dition (STC) refers	to			
(a) Irradiation-1000 W/(b) Irradiation-500 W/n(c) Irradiation-1500 W/(d) Irradiation-2000 W/	n^2,AM 1.5G global m^2,AM 1.5G globa	solar radiation, modu al solar radiation, mod	ile temperature-2 lule temperature	20 C -35 C	
14. Which of the following	ng are the steps invo	olved in designing of a	a standalone PV	system?	
(a) Solar energy estimat(c) Inverter selection an		(b)Load estimation (d) All the above.	Dr. S.THILA	GAVATHI M.E.) ; P h.D.,

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	mmunity or a specific se	load centre and dedicated to ret of loads basically in remote	
(a) Hybrid solar pv s (c) Standalone pv sys		(b) Grid – iterative pv system(d) None of the above.	n
16. Approach not use	ed in roof top mounting	PV arrays.	
(a) Rack	(b) Shingle	(c) Standoff	(d) Standon
17. In line commutate	ed inverter, which signa	l is used to synchronise the gr	id with the inverter?
(a) Load signal above.	(b) Grid signal	(c) signal in generating static	on (d) none of the
18. In self commutate	ed inverter,i	s used to lock the inverter sign	nal with that of grid
(a) Instrinsic electron	ics (b) Extrinsic electro	nics (c) both a & b	(d) none of the above
19. For non critical a	pplications mostly the s	tand-alone systems are sized f	or a system availability
(a)95% (3 to 5 days of (c) 85%(2 to 4 days of (c) 85%(2)		(b) 99%(6 to 10days of (d)80%(1 to 3 days of (d)80%(1)	
20. The percentage of load requirements is	the state of the s	ear that a stand-alone pv syste	em meets the system
(a) Useful capacity ratio	(b) Rated capacity	(c) System availability	(d) critical design
	the horizontal plane between the horizontal plane is	een the horizontal line due south	and the projection of the
(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 t	he help of
(a) Anemometer (b) Pyranometer (c)	c) Sunshine recorder (d) All of the above
23. Which of the following type of collector is use	ed for low temperature systems?
(a) Flat plate collector(b) Line focusing parabol(d) All of the above	ic collector (c) Paraboloid dish collector
24. The efficiency of various types of collectors _	with temperature.
(a) increases, decreasing(c) remains same, increasing	(b) decreases, increasing(d) depends upon type of collector
25. Maximum efficiency is obtained in	
(a) Flat plate collector(c) Line focusing collector	(b) Evacuated tube collector(d) Paraboloid dish collector

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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	С	5	b
6	b	7	d	8	d	9	d	10	a
11	d	12	b	13	a	14	d	15	С
16	d	17	b	18	a	19	a	20	С
21	с	22	b	23	a	24	b	25	d

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VALUE ADDED COURSE

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

1711	
Name of student: R. Aasha Year/Sem: 1 1	AU Reg.No: 912618105002
MCQ (25 X1 =25 MARKS)	
1. Solar cells are made up of	Kh
(a) Semiconductor (b) Conductor (c) Insulate	or All the work. Dr. S.THILAGAVATHTM.E.,Ph.D., PRINCIPAL SRIBHARATHI ENGINEERING
2. The current density of photovoltaic cell.	COLLEGE FOR WOMEN Kaikkurchi - 622 303, Pudukkotiai Dt.
(a) 10-20 mA/cm2 (b) 40-50 mA/cm2 (c) 20-4	10 mA/cm2 (d) 60-100 mA/cm2
3 photo voltaic devices in the for	rm 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. Series and parallel arrangement of solar	cells. (d) None of the above.
5. Photovoltaic cell or solar cell converts	
	tromagnetic radiation directly into electricity radiation into kinetic energy.
6. Why are inverters required on the modern PV S	Systems?

(a) To provide metering for the utility (6) To convert direct current (DC) to alternating current



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(c) To convert light to electricity	(d) To control	charge discharge	battery.
7. Which components are required	d for an on-grid PV	installation?	
(a) Charge controller (b) So	olar panel (c) In	nverter (d)	a,b,c.
8. The charge controller function	is		
(a) To regulate the incoming PV I full (c) Charges the battery as per			charging when battery is a,b,c
9. For grid-connected PV systems grid?	s, such parameters sl	nould be matched	to the ranges used by the
(a) Current (b) Vo above.	ltage	(c) Frequency	(d) All
10. Solar power conditioning is an	n important to ensur	e that,	
(a) The energy generated can be a (b) The serves to balance the syst (c) The distribution of power betw (d) The electric power generated	tem and to make it s ween off-grid and tr	ustainably operat ansmission paths	ional .
11. Which metal is used for making	ng solar cell		(X)
(a) Gold (b) Iron (c	c) Aluminium	(d) Silicon	Dr. S.THILAGAVATHI ME., Ph. C. PRINCIPAL SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
12. Full form of FF in the solar fie	eld is	_	Kaikkurchi - 622 303, Pudukkottai Dt.
a) Form factor (b) Fill fac	tor c) Face fact	or d) Fire	factor
13. Standard testing condition (ST	(C) refers to		
(a) Irradiation-1000 W/m^2,AM 1. (b) Irradiation-500 W/m^2,AM 1.			

(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 follo	wing are the steps invo	olved in designing of a standalo	ne PV system?
(a) Solar energy estin	nation	(b)Load estimation	
(c) Inverter selection	and battery bank size	(d) All the above.	
15	avatam is leasted at the	. 1	
	Marine and the management of the second of t	e load centre and dedicated to m	
		set of loads basically in remote	or rural areas which
have no access to grid	1 supply		
(a) Hybrid solar pv s	vstem	(b) Grid – iterative pv system	TWO
(c) Standalone pv sys	*/		r. S.THILAGAVATHIME PIAL
(c) standarone pv sys		(a) Ivolic of the above.	PRINCIPAL
16. Approach not use	d in roof top mounting	PV arrays.	SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
pp	a m roor top mouning	i value o	Kaikkurchi - 622 303, Pudukkottai Dt.
(a) Rack	(b) Shingle	(c) Standoff	(d) Standon
17 In line commutate			1 11 1 1 1 0
17. In line commutate	ed inverter, which signs	al is used to synchronise the gri	d with the inverter?
(a) Load signal above.	(b) Grid signal	(c) signal in generating station	n (d) none of the
18. In self commutate	ed inverter,	is used to lock the inverter sign	al with that of grid
(a) Instrinsic electron	ics (b) Extrinsic electro	onics (c) both a & b	(d) none of the above
ay mistriniste electron	ies (b) Extrusic electro	onies (e) oour a ce o	(d) hone of the above
19. For non critical ap	oplications mostly the s	stand-alone systems are sized for	or a system availability
(a)95% (3 to 5 days o	f autonomy)	(b) 000/(6 to 10days of	(autonomy)
		(b) 99%(6 to 10days of	
(c) 85%(2 to 4 days o	r autonomy)	(d)80%(1 to 3 days of	autonomy)
20. The percentage of	time over an average	year that a stand-alone pv syste	m meets the system
load requirements is o			
(a) Haafulit	(b) Date I	(0.0-4	(1) 12 1.1 1
(a) Useful capacity ratio	(b) Rated capacity	(System availability	(d) critical design



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		e horizontal plane between the horizontal plane is	the horizontal line due so	outh and the projection of the	ne	
(a)	Hour angle angle	(b) Declination	Surface azimuth a	ngle (d)Solar altitude		
22.	Solar radiation flux	is usually measured with	h the help of			
(a)	Anemometer	(b) Pyranometer	(c) Sunshine recorder	(d) All of the abov	e	
23.	Which of the follow	ving type of collector is a	used for low temperatur	re systems?		
_	Flat plate collector All of the above	(b) Line focusing parab	olic collector (c) Paraboloid dish collect	or	
24.	The efficiency of va	arious types of collectors	with	temperature.		
(a)	increases, decreasing	ng	(b) decreases, incr	reasing		
(c)	(c) remains same, increasing (d) depends upon type of collector					
25.	Maximum efficience	ey is obtained in				
(a)	Flat plate collector		(b) Evacuated tub	e collector		
(c)	Line focusing collection	etor	(d) Paraboloid dis	sh 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

PANELS
Name of student: E. Vanitha Year/Sem: 11/VI AU Reg.No: 9126171050
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

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(c) To convert light to electric	city (d) To co	ontrol charge disch	arge 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 fund	etion is						
(a) To regulate the incoming full (c) Charges the battery a			the charging when battery is a,b,c				
9. For grid-connected PV sys grid?	stems, such parame	ters should be mate	ched to the ranges used by the				
(a) Current (b above.) Voltage	(c) Frequen	cy (d) All				
10. Solar power conditioning	g is an important to	ensure that,					
(a) The energy generated can (b) The serves to balance the (c) The distribution of powe (d) The electric power gener	e system and to ma r between off-grid	ke it sustainably op and transmission p	perational aths.				
11. Which metal is used for r	making solar cell						
(a) Gold (b) Iron	(c) Aluminium	(d) Silicon	Dr. S.THILAGAVATHI M.E., Ph. I. PRINCIPAL SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN				
12. Full form of FF in the sol	ar field is		Kaikkurchi - 622 303, Pudukkottai Dt.				
	Second Control of the	ce factor d)	Fire factor				
13. Standard testing condition	n (STC) refers to _	<u> </u>	X				
(a) Irradiation-1000 W/m^2,	AM 1.5G global so	lar radiation, modu	ile temperature-25 C				
(b) Irradiation-500 W/m^2,A							
(c) Irradiation-1500 W/m^2,	AM 1.5G global so	lar radiation, modu	ale 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 invo	olved in designing of a standa	lone PV system?
(a) Solar energy estimation(c) Inverter selection and battery bank size	(b)Load estimation (d) All the above.	
15 pv system is located at the loads of a village/ community or a specific s have no access to grid supply		
(a) Hybrid solar pv systemStandalone pv system16. Approach not used in roof top mounting		S.THILAGAVATHI M.E., Ph.D., PRINCIPAL SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN
(a) Rack (b) Shingle	(c) Standoff	Kaikkurchi - 622 303, Pudukkottai Dt. (d) Standon
17. In line commutated inverter, which signa	al is used to synchronise the g	grid with the inverter?
(a) Load signal above.	(c) signal in generating stati	ion (d) none of the
18. In self commutated inverter,	is used to lock the inverter sig	gnal with that of grid
(a) Instrinsic electronics (b) Extrinsic electronics	onics (c) both a & b	(d) none of the above
19. For non critical applications mostly the sof about	stand-alone systems are sized	for a system availability
(a)95% (3 to 5 days of autonomy) (c) 85%(2 to 4 days of autonomy)	(b) 99%(6 to 10days (d)80%(1 to 3 days (•
20. The percentage of time over an average pload requirements is called	year that a stand-alone pv sys	tem meets the system
(a) Useful capacity (b) Rated capacity ratio	System availability	(d) critical design



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21. The angle made in the normal to the surface on		the horizontal line due south a	nd the projection of the				
(a) Hour angle angle	(b) Declination	© Surface azimuth angle	(d)Solar altitude				
22. Solar radiation flux	x is usually measured with	h the help of					
(a) Anemometer	(b) Pyranometer	(c) Sunshine recorder	(d) All of the above				
23. Which of the follow	23. Which of the following type of collector is used for low temperature systems?						
(a) Flat plate collector (d) All of the above	(b) Line focusing parab	oolic collector (c) Par	raboloid dish collector				
24. The efficiency of v	arious types of collectors	s with temp	perature.				
(a) increases, decreasing (c) remains same, increases		(d) depends upon type					
25. Maximum efficience	cy is obtained in						
(a) Flat plate collector(c) Line focusing colle		(b) Evacuated tube coll (a) Paraboloid dish col					

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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: 1 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 (4) To convert direct current (DC) to alternating current

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

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(c) To convert light to e	lectricity (d) To	control charge dis	scharge battery.	
7. Which components as	re required for an on-g	rid PV installation	n?	
(a) Charge controller	(b) Solar panel	(c) Inverter	(d) a,b,c.	
8. The charge controller	function is			
(a) To regulate the incomful (c) Charges the batter			, ,	when battery is
9. For grid-connected P grid?	V systems, such paran	neters should be n	natched to the ra	anges used by the
(a) Current above.	(b) Voltage	(c) Frequ	nency	(d) All
10. Solar power condition (a) The energy generate (b) The serves to balance (c) The distribution of power (d) The electric power (d)	ed can be effectively a ce the system and to m cower between off-grid	nd safely delivere take it sustainably d and transmission	operational n paths.	
11. Which metal is used		nes goes unough		XLX
(a) Gold (b) Iron	n (c) Aluminium	m (d) Silic	COLL	AGAVATHI M.E., Ph.D. PRINCIPAL RATHI ENGINEERING EGE FOR WOMEN
12. Full form of FF in th			Kaikkurchi	- 622 303, Pudukkottai Dt.
a) Form factor	b) Fill factor c) F	ace factor	d) Fire factor	
13. Standard testing con	ndition (STC) refers to	·	X	
(a) Irradiation-1000 W/				
(b) Irradiation-500 W/n (c) Irradiation-1500 W/n				
(d) Irradiation-2000 W/			-	



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14. Which of the follo	wing are the steps invo	olved in designing of a standal	one PV system?			
(a) Solar energy estim		(b)Load estimation				
(c) Inverter selection	and battery bank size	(d) All the above.				
		e load centre and dedicated to				
have no access to grid		set of loads basically in remote	e or rural areas which			
(a) Hybrid solar pv s	ystem	(b) Grid – iterative pv syste	MS.THILAGAVATHIME,Ph.D.,			
(c) Standalone pv sys	tem	(d) None of the above.	PRINCIPAL SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN			
16. Approach not use	d in roof top mounting	g PV arrays.	Kaikkurchi - 622 303, Pudukkotiai Dt.			
(a) Rack	(b) Shingle	(c) Standoff	(d) Standon			
17. In line commutate	ed inverter, which sign	al is used to synchronise the g	rid with the inverter?			
(a) Load signal above.	(b) Grid signal	(c) signal in generating stati	on (d) none of the			
18. In self commutate	d inverter,	is used to lock the inverter sig	nal with that of grid			
(a) Instrinsic electron	ics (b) Extrinsic electro	onics (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 o	f autonomy)	(b) 99%(6 to 10days	of autonomy)			
(c) 85%(2 to 4 days o	f autonomy)	(d)80%(1 to 3 days of				
20. The percentage of load requirements is of		year that a stand-alone pv syst	tem meets the system			
(a) Useful capacity ratio	(b) Rated capacity	(c) System availability	(d) critical design			



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21. The angle made in the normal to the surface on		the horizontal line due south a	and the projection of the
(a) Hour angle angle	(b) Declination	(c) Surface azimuth angle	(d)Solar altitude
22. Solar radiation flux	x is usually measured with	n the help of	
(a) Anemometer	(b) Pyranometer	(c) Sunshine recorder	(d) All of the above
23. Which of the follow	wing type of collector is u	ased for low temperature sys	stems?
(a) Flat plate collector (d) All of the above	(b) Line focusing parabolic	olic collector (c) Par	raboloid dish collector
24. The efficiency of v	rarious types of collectors	with temp	perature.
(a) increases, decreasing	ng	(b) decreases, increasing	g
(c) remains same, incre	easing	(d) depends upon type	of collector
25. Maximum efficien	cy is obtained in		
(a) Flat plate collector		(b) Evacuated tube coll	
(c) Line focusing colle	ctor	(d) Paraboloid dish col	lector

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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		ACE 50%	VAC - 50%	-MCQ (b(B)	OVERALL MARK
				No of Session Attended	MARKS	No of Correct Answer	MARKS	(A+B)
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	ȘUBHASRI 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

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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



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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	
	912617105005	SELSIYA R			
1	912617105006	THENMOZHI J	III/V		
	912617105007	VANITHA E		PARTICIPATIVE LEARNING- WORKSHOP	
	912616105001	ABIRAMI M			
	912616105008	PRASANNA K			
2	912616105010	SNEHA V	IV/VII		
	912616105013	SURIYAKALA R			
3	912616105008	PRASANNA K		PARTICIPATIVE	
	912616105010	SNEHA V	IV/VIII	LEARNING- SYMPOSIUM	

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"Power Quality Monitoring, Analysing and Troubleshooting"

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

PAPER PRESENTATION

FLUKE HEAD

Dr. S.THILAGAVATHI M.E., Ph.D.,

SEPRONOC I PAL

CEO

CHAIRMAN

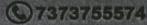
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PAPER PRESENTATION

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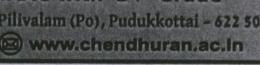




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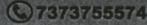
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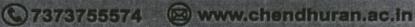




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on 22/02/2020 and has won the	prize.

o-ordinator Dr. S.THILAGAVATHI M.E., Ph.D.

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on 22/02/2020 and has won the	nrize.

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