

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

# **NAAC DOCUMENTS**

**QUALITY INDICATOR FRAME WORK** 

# **CRITERION – 1**

# **CURRICULAR ASPECTS**

#### SUBMITTED BY

IQAC INTERNAL QUALITY ASSURANCE CELL INDRA GANESAN COLLEGE OF ENGINEERING



#### DEPARTMENT OF ELECTRICAL AND ELECTRINICE ENGINEERING

#### ACADEMIC YEAR 2018-2019 / ODD SEMESTER

#### **1.2 Academic Flexibility (30)**

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

AND

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

VAC Title:	Elect	rical N	Iachine Des	ign, W	inding	, Asse	embling	, & D	)ismantling.		
Resource Pe	rson:	Smar	.Kavitha, Do t Power Ca ai Nagar, Tı	re,	Enginee	er,	Smart	Powe	Khanna, Tra er Care, ar, Trichy.	ainer	
Date of cond	luct fro	m:	10.12.2018		To:	14.1	2.2018		Duration:	<b>30 Hours</b>	
Organized D	epartn	nent:	ELECTRI	CAL A	ND E	LEC	ΓRINIC	E EN	GINEERIN	G	
Participant	Year:	EEE II	- IV, III,	Seme	ster:	OD	D	No.	of Students	Registered:	92
Venue: E	Venue:         EEE- II,III Year Class Rooms,IGCE										

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Department of Electrical and Electronics Engineering Academic Year 2018-2019 – Odd Semester

06.12.2018

#### DEPARTMENT CIRCULAR

Department of Electrical and Electronics Engineering of IGCE in association with Smart Power Care is going to organize Value Added Course for all Second, Third and Final year students on "Electrical Machine Design, Winding, Assembling, & Dismantling" from 10.12.2018 to 14.12.2018. Certificates will be issued to the eligible participants at the end of the Course. This training is to be provided in our campus.

Resource Person Detail	1.Ms.Kavitha, Design Engineer, Smart Power Care, Thillai Nagar, Trichy
	2.C.Rajesh Khanna, Trainer Smart Power Care, Thillai Nagar, Trichy.
Venue	EEE II and III yr Classrooms, IGCE

Sr. Ma lathi

HOD/EEE

Cc:

- Principal office
- Class In charges II, III & IV-Year
- II, III & IV-Year EEE Students
- Office File
- Notice Board

Dr. G. Balal shnan, M.E., Ph.D., Principal

Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.



## Value Added Course

"Electrical Machine Design, Winding, Assembling, & Dismantling"

#### SYLLABUS

S.NO	TOPIC COVERED	DURATION (in hours)	DATE
1	Introduction about rotating machine and materials used	3	10.12.2018
2	Design of Electrical Windings and MMF distribution	3	10.12.2018
3	DC Machine Windings.	3	11.12.2018
4	AC Machine Windings	3	11.12.2018
5	ELCB Testing	3	12.12.2018
6	Short circuit and open circuit Testing	3	12.12.2018
7	Static Machines - Transformers	3	13.12.2018
	Oil testing of Transformer	3	13.12.2018
9	Assembling and Dismantling of electrical machine, Dol starter design	3	14.12.2018
10	Design of 2point, 3 point starter and	3	14.12.2018
11	Exam	1	14.12.2018
404 - 11-11-11-14	Total Hours (Excluding Exam)	30	-

math Coordinator

Gr. Malathi

HoD/EEE



#### COL . a series OF 1 ENGINEE Madurai Main Road (NH-458).Manikandam, Trichy-12. Approved by AICTE, NewDeini & Affiliated to Anna University. Chennal

Dr. G. Balakrishnan, M.E., Ph.D., **Principal** 

Value Added Course

Indra Ganesan College of Engineering IG Valley, Madurai Main Road IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

STUDENTS PARTICIPATION LIST

S.NO	REG NO	STUDENTS NAME	YEAR/ BRANCE
1	81121510500	AMUDHA. M	IV/EEE
2	811215105002	2 ANAND.V	IV/EEE
3	811215105003	BALACHANDRAN. M	IV/EEE
4	811215105004	BHUVANESWARI. A	IV/EEE
5	811215105005	DEEPA RAGAVI.M	IV/EEE
6	811215105006	FATHIMA SELVI. C	IV/EEE
7	811215105007	GAJALAKSHMI. B	IV/EEE
8	811215105008	GAYATHRI. R	IV/EEE
9	811215105009	GOMATHI. S	IV/EEE
10	811215105010	GOMATHY. M	IV/EEE
11	811215105011	GOPINATH, R	IV/EEE
12	811215105012	GUNASEELAN. M	IV/EEE
13	811215105013	JERALD FELIX. A	IV/EEE
14	811215105014	KEERTHANA. K	IV/EEE
15	811215105015	MANIKANDAN, M	IV/EEE
16	811215105016	MEENA. S	IV/EEE
17	811215105017	MEENAKSHI. P	IV/EEE
18	811215105018	MOHAMED ANSARI. A	IV/EEE
19	811215105019	MOHAMED IBRAHIM. A	IV/EEE
20	811215105020	NIVETHA. B	IV/EEE
21	811215105021	PRASANTH. R	IV/EEE
22	811215105022	PRIYA. G	IV/EEE
23	811215105023	PRIYANKA. P	IV/EEE
24	811215105024	SATHEESWARL P	IV/EEE
25	811215105025	SATHISHBABU. K	IV/EEE
26	811215105026	SATHIYAPRIYA. M	IV/EEE
27 8	811215105027	SELASTEENA RANI, J	IV/EEE
28 8	811215105028	SHALINI. M	IV/EEE
29 8	811215105029	SIVA RAMAN. M	
	1	SIVASAKTHI.A	IV/EEE IV/EEE
		<b>SOPHIYA</b> . Т	
		SRI GAYATHRI. M	IV/EEE
		TAMILSELVI.M	IV/EEE
-		VANITHA. R	IV/EEE IV/EEE





Dr. G. Balakrishnan, M.E., Ph.D., Principal

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ndra Ganesan College of Engine IG Valley, Madurai Main Roa Manikandam Tricking	eri <b>so</b> NO d	REG NO	STUDENTS NAME	YEAR/ BRANCI
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	48	811216105010	KIRUTHIKA B	III/EEE
	49	811216105011	LOURDHU MARY D	III/EEE
	50	811216105012	MARIA SHOBANA J	III/EEE
je	51	811216105014	MERLIN REETA P	III/EEE
	52	811216105015	NIROSHINI R	III/EEE
	53	811216105016	NITHING A	III/EEE
	54	811216105017	PAVENTHAN A	III/EEE
Page 1	55	811216105018	PRAVEEN KUMAR M	III/EEE
	56	811216105019	PRISILLA PRIYANKA	III/EEE
y martin E		811216105020	RAJA V	III/EEE
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			TAMILARASAN M	·III/EEE
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S.NO	REG NO	STUDENTS NAME	YEAR/ BRANCH
73	811217105011	GAYATHRI K	II/EEE
74	811217105012	GAYATHRI S	II/EEE
75	811217105013	KANIMOZHI S	II/EEE
76	811217105014	KEERTHANA S	II/EEE
77	811217105015	KUMARIVALLI T	II/EEE
78	811217105016	MADHUMITHA S	II/EEE
79	811217105017	MANO K	II/EEE
80	811217105018	MEKALA M	II/EEE
81	811217105020	PAVITHRA S	II/EEE
82	811217105021	PRAVEEN RAJ R	II/EEE
83	811217105022	RAJASEKAR.N V	II/EEE
84	811217105023	REVATHI P	II/EEE
85	811217105024	RISHON GURU M	II/EEE
86	811217105026	SANTHOSH K	II/EEE
87	811217105027	SRIKUMAR M S	II/EEE
88	811217105028	SRI LOGESH C	II/EEE
89	811217105029	SUBHA T	II/EEE
90	811217105031	VALARMATHI C	II/EEE
21	811217105032	VISWANATH R	II/EEE
2	811217105301	SANJEEV KUMAR R	II/EEE

-B)Porrathi VAC Coordinator

Gr. Ma Lath

HOD/EEE



## **Department of Electrical and Electronics Engineering**

Academic Year 2018-2019 - Odd Semester

STUDENTS ATTENDANCE LIST

Value Added Course

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012

	Electrical Machine Desi	gn, W	inding,	Assembling,	&	Dismantling	
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S.NO	REG NO	STUDENTS NAME	YEAR/	10.12	10.12.2018		11.12.2018		12.12.2018		13.12.2018		2.2018	NO OF	SIGNATURE
			BRANCH	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	SESSIONS ATTENDED	OF THE STUDENT
1	811215105001	AMUDHA. M	IV/EEE	V	1	~	1	-					AUN		STODENT
2	811215105002	ANAND.V	IV/EEE	V	V.	V	-	V	V	~	~	~	~	10	AMUTCHA.M
3	811215105003	BALACHANDRAN, M	IV/EEE		~	~	a	~	V	~	$\sim$	$\checkmark$	V	9	ANDAS
4	811215105004	BHUVANESWARI. A			V	$\checkmark$	~	V	M	$\checkmark$	$\checkmark$	~	~	10	Balachen
5	811215105005	DEEPA RAGAVI.M	IV/EEE		~	~	~	~	Q.	~	$\sim$	~	1	9	Bling
6	811215105006	FATHIMA SELVI. C	IV/EEE	$\sim$	~	V	V	V	V	$\sim$	a	/	1	9	Decpa Ragavi
7	811215105007	GAJALAKSHMI. B	IV/EEE	0en	~	~	~	~	V	~	~	1	1	9	lin
8	811215105008	GAYATHRI. R	IV/EEE	~	V	~	V	/	~	~	~	1	/	10	Groja Gerthat
9	811215105009	GOMATHI. S		$\checkmark$	V	a	~	~	/	~	~	1	1		Grayothi
10	811215105010	GOMATHY. M	IV/EEE	5	$\checkmark$	$\checkmark$	$\checkmark$	~	~	~	V	/	1		
11	811215105011		IV/EEE	V	$\checkmark$	$\checkmark$	V	$\checkmark$	~	~	V	1	1	10	Gumethe
12		GOPINATH. R	IV/EEE	~	V	V	$\checkmark$	V	V	V	a	~	1	0	M. Crowsf 7
13	811215105012	GUNASEELAN. M	IV/EEE	~	~	V	a	V	V		1	~	~	0	R. Gopinal
12	811215105013	JERALD FELIX. A	IV/EEE	./		~		-	-	V	-	1	~	9	M. Grunsee

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Indra Ganesan COLLEGE OF ENGINEERING Approved by AICTE, NewDelhi & Affiliated to Anna University, Chennal 32

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Dr. G. Balakrishnan, M.E., Ph.D., Principal

Indra Ganesan College of College

IG Valley, Madurai Main Road Manikandam, Trichy-620 012

5.NO	REG NO	STUDENTS NAME	YEAR/	10.1	2.2018	11.1	2.2018	12.1	2.2018	13.1	2.2018	14.12.2018			SIGNATURE
			BRANCH	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	SESSIONS ATTENDED	OF THE STUDENT
14	811215105014	KEERTHANA. K	IV/EEE	1	~	~	~	1	1	~	~	~	~	10	keoset
15	811215105015	MANIKANDAN. M	IV/EEE	a	~	V	V	~	~	V	V	~	~	9	Marlander
16	811215105016	MEENA. S	IV/EEE	~	a	a	V	V	V	~	~	~	~	8	Meena-
17	811215105017	MEENAKSHI. P	IV/EEE	V	V	V	V	V	~	a	a	~	1	q	Nil
18	811215105018	MOHAMED ANSARI. A	IV/EEE	~	~	~	~	1	1.2	V	a	1	5	9	Had A
19	811215105019	MOHAMED IBRAHIM. A	IV/EEE	~	1	~	~		1	1	-	~	1	10	Mohunt
20	811215105020	NIVETHA. B	IV/EEE	V	a	V	~	1	1	1	V	1	1	9	With
21	811215105021	PRASANTH. R	IV/EEE	~	V	~	. /	a	a	Č	1-	V	1	8	Recetto
22	811215105022	PRIYA. G	IV/EEE	1	1		2	1	1	a	5	V	1	a	au
23	811215105023	PRIYANKA. P	IV/EEE	~	~	-	~		1		V	-	1	10	Pathanas
24	811215105024	SATHEESWARI. P	IV/EEE	5	~	V	V	V	1	12	V	1	1	10	p.D
25	811215105025	SATHISHBABU. K	IV/EEE	~	~	a	1		V	1	-	1	1	9	K. Jol: W
26	811215105026	SATHIYAPRIYA. M	IV/EEE	w	V	V	V	a	0	1	4	~	1	8	Terk
27	811215105027	SELASTEENA RANL J	IV/EEE	a	V	1	12	12	11-	~	~	~	1	9	Solastik
28	811215105028	SHALINI. M	IV/EEE	V	~	V	~	2	V	V	~	1	1	10	Citation In
29	811215105029	SIVA RAMAN, M	IV/EEE	V	~	V	a	~	1000	-	~		1	9	Civi gran
30	811215105030	SIVASAKTHI.A	IV/EEE	1	V	~	V	V	V	V	V	~	~	10	A (7 - 5
31	811215105031	SOPHIYA, T	IV/EEE	V	~	~	V	11	1	12	1	1	~	10	Sol
32	811215105032	SRI GAYATHRI. M	IV/EEE	a	V	V	1	12	12	1×	L	2	1	4	(Fland - 7
33	811215105033	TAMILSELVI.M	IV/EEE	~	~	a	a	1	~	V	~	1	~	8	TOL
34	811215105034	VANITHA. R	IV/EEE	~	~	~	~	-	5	a	a	~	~	8	H. Jan Boly
35	811215105035	VANITHA. S	IV/EEE	~	~	V	V	~	a	~	~	./		9	Varitha
36	811215105036	VASUMATHI. V	IV/EEE	V	V	1	1	V	V	V	V	-	1	10	ing nearly

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S.NO	REG NO	STUDENTS NAME	YEAR/	1.000	2.2018	11.12	2.2018	12.1	2.2018	13.12	2.2018	14.12	2.2018	NO OF	SIGNATURE
			BRANCH	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	SESSIONS ATTENDED	OF THE STUDENT
37	811215105037	VIGNESHWARAN, N	IV/EEE	1	~	2	a	1.	-	0.000					STODENT
38	811215105038	VIJAYALAKSHMI, R	IV/EEE	12	1.1	1		1	V	V	4	~	~	9	Voreshill
39	811215105039	VINOTH. S	IV/EEE	1.	V	X	V	a	a	~	X	~	V	8	Sujolat .
40	811216105001	ATTCHAYA A K	III/EEE	a	V		V	V	V	4	~	~	V	10	Vineth. S
41	811216105003	BENAZIR M	III/EEE	V	5	à	à	V	V	L	1-	~	~	9	Aab
42	811216105004	GUNA SEELAN D	III/EEE	1	0		u	V	V	V	~	1	V	8	Rei
43	811216105005	HARI GOWTHAM M	III/EEE	V	a	V	4	IV	K	K	5	~	~	9	Gurl.
44	811216105006	HARIHARAN B	IIVEEE	v	~	V	V	V	V	r	4	1	1	10	Hanilion
45	811216105007	ISWARYA K	III/EEE	V	V	a	V	1	1	1	K	V	~	9	Hari lan
46	811216105008	KALISTA P	III/EEE	5	Y	1	V	V	V	1	4	~	~	10	burgener
47	811216105009	KHAJAMOINUDEEN S	IIVEEE	V	a	V	and the second se	V	1	V	4	V	~	10	Kalish.Th
48	811216105010	KIRUTHIKA B	III/EEE	V		-	V	V	~	V	V	1	V	9	house
49	811216105011	LOURDHU MARY D	III/EEE	~	V	~	5	5	V	a	a	1	V	8	kindula
50	811216105012	MARIA SHOBANA J	III/EEE		~	~	~	a	a	V	~	1	1	8	Loundhu
51	811216105014	MERLIN REETA P	III/EEE	a	V	V	5	V	V	4	4	V	1	-	Moria Shaf
52	811216105015	NIROSHINI R	III/EEE		V	~	V	~	~	V	-	1	1	10	Mon
53	811216105016	NITHING A	III/EEE	V	V	V	a	~	~	~	5	1	1	9	Visoshin
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55	811216105018	PRAVEEN KUMAR M		V	~	a	4	~	~	4	4	1	1	9	aventhad
56	811216105019	PRISILLA PRIYANKA	III/EEE	V	V	V	~	~	~	~	~	1	1		Prestan Kul
57	811216105020	RAJA V	III/EEE	a	0	1	~	1	1	-	-	1	1		PRISILATIO
8	811216105021	RATHINA RAJ R	III/EEE	V	~	V	K	~	~	~	4	1	1		Rajov
59	811216105023	RESHMI D	III/EEE III/EEE	2	V	V	a	1	V	~	/	1	1		attiona Ray

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Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering

IG Valley, Madurai Main Road Manikandam, Trichy, 620 012

NO	REG NO	STUDENTS NAME	YEAR/	10.12	2.2018	11.12	2.2018	12.12	2.2018	13.12	.2018	14.12	2.2018	NO OF	SIGNATURE
1025			BRANCH	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	SESSIONS ATTENDED	OF THE STUDENT
60	811216105024	ROOBINI S	III/EEE	V	.~	1	V	~	V	V	V	~	-	10	Doch
61	811216105025	SURESH K	III/EEE	~	~	~	~	~	1	2	~	v	1		K.Scalt.
62	811216105026	SURIYA PRAKASH K	III/EEE	1	OL.	V	1/	~	V		2	V	- 2-	9	K-Sweya
63	811216105027	TAMILARASAN M	III/EEE	V	1	er	CL	V	1	V	V	v		8	
64	811216105028	TAMILAZHAGAN M	III/EEE	V	V		V	CL	a	2	V	v	~	8	M. Tan
65	811216105029	VINOTH R	III/EEE	V	1	12	a	V	V	1	V	v		9	R. Vinit
66	811216105302	PARKAVI S	III/EEE	V	1	1	V	1	1	1	1	1	1	10	S. Riskavi
67	811217105005	ARUL JOY ASHA A	II/EEE	a	1	V	1	1	1	1	~	1	1	9	A.Asha
68	811217105006	ARUN SEBASTIN P	II/EEE	~	V	w.	V	1	V	a	a	1	1	8	
69	811217105007	BHARTHASARATHI M	II/EEE	V	a	1	1	1	1	1	~	1	1	9	Peu Sur
70	811217105008	CHITHRA P	II/EEE	V	~	V	1	1	~	1		1	1	10	chittel
71	811217105009	DEEPIKA G	II/EEE	~	12	11	V	a	V	1	1	1	1	9	Gt. Doepiter
72	811217105010	EZHUMALAI A	II/EEE	V	1		1	~	2	V	1	- 7	1	10	Eshund
73	811217105011	GAYATHRI K	II/EEE	V	1	V	V	V	~	V	V	1	1	10	marat
74	811217105012	GAYATHRI S	II/EEE	1	V	V	V	V	1	1	V	1	1	10	S.A.w.A
75	811217105013	KANIMOZHI S	II/EEE	1	1	a	V	1	1/	V	V	V	V	9	KANDE
76	811217105014	KEERTHANA S	II/EEE	+	1	V		1	1	a	à	1	V	S	Slade
77	811217105015	KUMARIVALLIT,	II/EEE	1	1.	1.00			a	1	~	1	1	9	Kupaniall
78	811217105016	MADHUMITHA S	II/EEE	V	V	12	5	2	V	10	L	- )	1	10	March Lun
79	811217105017	MANO K	II/EEE	a	V	V	1	1	~	1	V		1	9	Maria
80	811217105018	MEKALA M	II/EEE	V	V	V	V	V	V	V	N	1	1	10	Nekale.
81	811217105020	PAVITHRA S	II/EEE	N -	10	0	V	V	V	in	N	1	1	10 .	Davithra
82	811217105021	PRAVEEN RAJ R	II/EEE	1	1	a	10	1	1	1	~	5	1	9	Prayern Ra



S.NO	REG NO	STUDENTS NAME	YEAR/	10.12.2018		10.12.2018		10.12.2018		10.12.2018		10.12.2018		10.12.2018 11.12.	11.12.2018		2.2018	13.12	2.2018	14.12.2018		NO OF	SIGNATURE
	- 182 MA		BRANCH	FN	AN	SESSIONS ATTENDED	OF THE STUDENT																
83	811217105022	RAJASEKAR.N V	II/EEE	1	~	a	a	4						~	2.0								
84	811217105023	REVATHI P	II/EEE	a	a	1		V	V	V	K	-	V	8	Xingala.								
85	811217105024	RISHON GURU M	IL/EEE	-		1	V	¥"	1	5	5		~	8	Pur the								
86	811217105026	SANTHOSH K	IVEEE	ň	10	V	V	1	a	V	N	V.	V	9	Richour								
87	811217105027	SRIKUMAR M S	II/EEE	~	Ne	~	~	1	-	~	1	0	10	10 0	Senth								
88	811217105028	SRI LOGESH C	II/EEE		1	-	~	~	V	K	K		1	9	Southanno								
89	811217105029	SUBHA T	II/EEE	V	Y	~	V	CL	a	~	4	1	1	8	Soular								
90	811217105031	VALARMATHI C	and the second se	2	V	V	~	V	V	a	a	1	1	8	Suba								
91	811217105032	VISWANATH R			V	~	~	~	1	~	a	1	1	9	valam								
92	811217105301	SANJEEV KUMAR R	II/EEE II/EEE	~	2	à	-	4	-	~	-	1	1	10	Buchd								

Demath VAC Coordinator

. . .

Gr. Ma Lath HOD/EEE



## Value Added Course

"Electrical Machine Design, Winding, Assembling, & Dismantling"

Name of the Student:

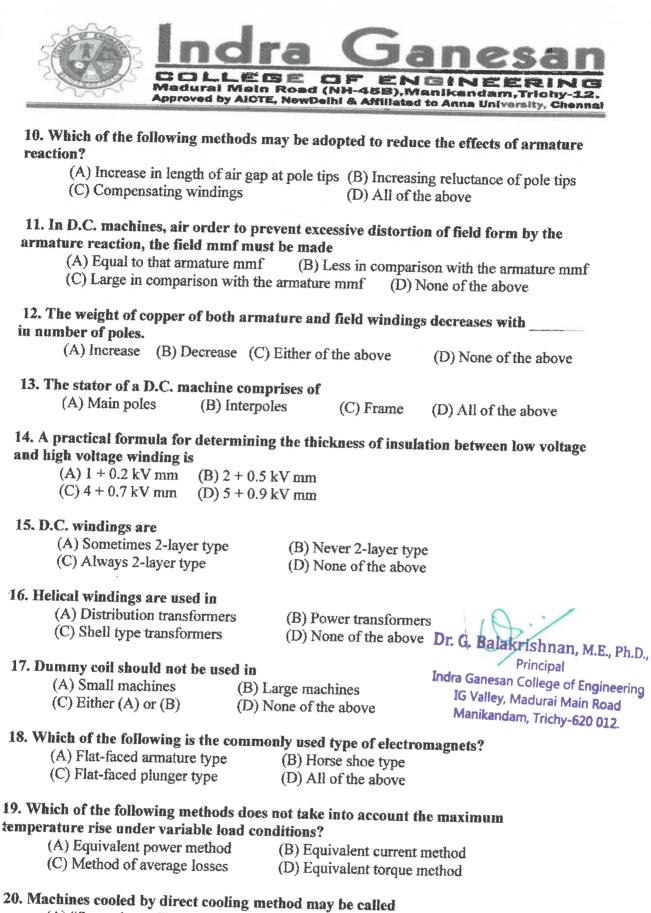
Year/Sem:

a

**AU Register Number:** 

#### Multiple Choice Questions (25X1 = 25 Marks)

	HOLE WESTONS ZJAT - 25 WIREKS
1 Which of the following is an ad	
1. Which of the following is an ad	(P) Increases in mating ?
<ul><li>(A) Increase in efficiency</li><li>(C) Increase in life</li></ul>	(D) All of the above
(c) morease in me	(D) All of the above
2 cooling is the process of	dissipating the armature and field winding losses to
cooling medium circulating within	the winding insulation wall
(A) Direct B) Indirect	(C) Conventional (D) Any of the above
3electromagnets generally	function as holding magnets
(A) Tractive (B) Portative	(C) Either of the above (D) None of the above
4. Direct water cooling of rotor wi	nding presents
(A) No mechanical difficultie	(B) Lesser mechanical difficulties
(C) Greater mechanical diffic	ulties (D) None of the above
5 The winding whom down as the	
5. The winding where dummy coils	s are used is sometimes called
<ul><li>(A) Duplex winding</li><li>(C) Forced winding</li></ul>	(B) Triplex winding
(C) Porcea winding	(D) None of the above
6. The heat dissipating canability of	f transformers of rating higher than 30 kVA in
increased by providing which of the	e following?
(A) Corrugations (B) Fins	s (C) Tubes (D) All f the above
7. A current density of is u	used for large power transformers with forced
circulation of oil or with water cool	ing coils
(A) 1.5 to 2.5 A/mm <sup>2</sup> (A) $(A) = \frac{1}{2} 1$	(B) $3.5 \text{ to } 4.5 \text{ A/mm}^2$
(C) 4.0 to 5.0 $A/mm^2$	(D) 5.4 to 6.2 A/mm <sup>2</sup>
8. D.C. servomotors are used in	
(A) Purely D.C. control system	
(C) Both D.C. and A.C. contro	( )
(C) Dour D.C. and A.C. conno	l systems (D) None of the above
9. In D.C. machine the current per	hrush arm should not be more then
(A) 100 A (B) 200 A (	C) 300 A (D) 400 A
(),,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
N (D	/



- (A) "Supercharged" (B) "Inner cooled"
- (C) "Conductor cooled" (D) Any of the above



## 21. Which of the following methods is used for air cooling of turbo-alternators?

(A) One sided axial ventilation

- (B) Two sided axial ventilation
- (C) Multiple inlet system
- (D) All of the above

#### 22. The heat dissipated by from a surface depends upon its temperature and its characteristics like colour, roughness etc.

(A) Conduction	(B) Convection
(C) Radiation	(D) Any of the above

## 23. Materials exhibiting zero value of resistivity are known as \_\_\_\_\_

- (A) Conductors (B) Semiconductors
- (C) Insulators (D) Superconductors

#### 24. Commercial available medium size machines have a speed range of (A) 200 to 400

(A) 200 to 400 r.p.m.	(B) 600 to 1000 r.p.m.
(C) 1000 to 1500 r.p.m.	(D) 2000 to 2500 r.p.m.

25.

#### has low-relative permeability and is used principally in field frames when cost is of primary importance and extra weight is not objectionable. (A) Cast steel

(B) Aluminium (C) Soft steel (D) Cast iron



## Value Added Course

"Electrical Machine Design, Winding, Assembling, & Dismantling"

1	D	6	D	11	С	16	В	21	D
2	Α	7	D	12	A	17	В	22	с
3	В	8	A	13	D	18	D	23	D
4	С	9	D	14	D	19	С	24	D
5	С	10	D	15	С	20	D	25	D

#### ANSWER KEY

S. Bomathi **VAC Coordinator** 

Approved by AICTE, NewDelhi & Affiliated to Anna University, Chennal
Value Added Course
"Electrical Machine Design, Winding, Assembling, & Dismantling" Name of the Student: Subha. T Year/Sem: 11 / 11
AU Register Number: 811217105029
Multiple Choice Questions (25X1 = 25 Marks)
1. Which of the following is an advantage of hydrogen cooling? (A) Increase in efficiency (C) Increase in life (B) Increase in ratings (C) Increase in life (C) Increase in li
2 cooling is the process of dissipating the armature and field winding losses to a cooling medium circulating within the winding insulation wall (A) Direct B) Indirect (C) Conventional (D) Any of the above
3       electromagnets generally function as holding magnets.         (A) Tractive       (B) Portative       (C) Either of the above       (D) None of the above
4. Direct water cooling of rotor winding presents (A) No mechanical difficulties (B) Lesser mechanical difficulties (D) None of the above
5. The winding where dummy coils are used is sometimes called (A) Duplex winding (C) Forced winding (C)
6. The heat dissipating capability of transformers of rating higher than 30 kVA in
increased by providing which of the following? (A) Corrugations (B) Fins (C) Tubes (D) Att/f the above
7. A current density of is used for large power transformers with forced circulation of oil or with water cooling coils <ul> <li>(A) 1.5 to 2.5 A/mm<sup>2</sup></li> <li>(B) 3.5 to 4.5 A/mm<sup>2</sup></li> <li>(C) 4.0 to 5.0 A/mm<sup>2</sup></li> <li>(D) 5.4 to 6.2 A/mm<sup>2</sup></li> </ul>
8. D.C. servomotors are used in (A) Purely D.C. control systems(B) Purely A.C. control systems(C) Both D.C. and A.C. control systems(D) None of the above
9. In D.C. machine the current per brush arm should not be more than (A) 100 A (B) 200 A (C) 300 A (D) 400 A



10. Which of the following methods may be adopted to reduce the effects of armature reaction?

(A) Increase in length of air gap at pole tips (C) compensating windings (D) All of the above

11. In D.C. machines, air order to prevent excessive distortion of field form by the armature reaction, the field mmf must be made

(A) Equal to that armature mmf (B) Less in comparison with the armature mmf (C) barge in comparison with the armature mmf (D) None of the above

A there ase (B) Decrease (C) Either of the above (D) None of the above

13. The stator of a D.C. machine comprises of (A) Main poles (B) Interpoles

(C) Frame

(D)All of the above

14. A practical formula for determining the thickness of insulation between low voltage and high voltage winding is

(A) 1 + 0.2 kV mm (B) 2 + 0.5 kV mm(C) 4 + 0.7 kV mm (D) 5 + 0.9 kV mm

#### 15. D.C. windings are

(A) Sometimes 2-layer type (C) lways 2-layer type (B) Never 2-layer type(D) None of the above

#### 16. Helical windings are used in

(A) Distribution transformers(C) Shell type transformers

(B) Power transformers (D) None of the above

Dr. G. Balakrishnan, M.E., Ph.D.,

Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

#### 17. Dummy coil should not be used in

(A) Small machines(C) Either (A) or (B)

(D) None of the above

#### 18. Which of the following is the commonly used type of electromagnets?

- (A) Flat-faced armature type
- (C) Flat-faced plunger type

(B) Horse shoe type (D) All of the above

19. Which of the following methods does not take into account the maximum temperature rise under variable load conditions?

(A) Equivalent power method (C) Method of average losses

- (B) Equivalent current method
- (D) Equivalent torque method

#### 20. Machines cooled by direct cooling method may be called

- (A) "Supercharged"
- (C) "Conductor cooled"

(B) "Inner cooled" (D) Any of the above



## 21. Which of the following methods is used for air cooling of turbo-alternators?

(A) One sided axial ventilation

(C) Multiple inlet system

(B) Two sided axial ventilation (D) All of the above

# 22. The heat dissipated by from a surface depends upon its temperature and its characteristics like colour, roughness etc.

(A) Conduction (B) Convection

(C) Radiation (D) Any of the above

## 23. Materials exhibiting zero value of resistivity are known as

- (A) Conductors (B) Semiconductors
- (C) Insulators

DSuperconductors

## 24. Commercial available medium size machines have a speed range of

(A) 200 to 400 r.p.m.(C) 1000 to 1500 r.p.m.

(B) 600 to 1000 r.p.m. (D)2000 to 2500 r.p.m.

# 25. \_\_\_\_\_ has low-relative permeability and is used principally in field frames when cost is of primary importance and extra weight is not objectionable.

(A) Cast steel

(B) Aluminium

(C) Soft steel

(D))Cast iron

Dr. G. Balakrishi nan M.E., Ph.D.,

Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Approved by AICTE, NewDeihi & Affiliated to Anna University, Chennai
Value Added Course
"Electrical Machine Design, Winding, Assembling, & Dismantling"
Name of the Student: IgwARYAK Year/Sem: II/V 18 AU Register Number: 811216105007
Multiple Choice Questions (25X1 = 25 Marks)
1. Which of the following is an advantage of hydrogen cooling? (A) Increase in efficiency (C) Increase in life (B) Increase in ratings (D) Aff of the above
2 cooling is the process of dissipating the armature and field winding losses to a cooling medium circulating within the winding insulation wall (A) Direct B) Indirect (C) Conventional (D) Any of the above
3
4. Direct water cooling of rotor winding presents (A) No mechanical difficulties (B) Lesser mechanical difficulties (C) Greater mechanical difficulties (D) None of the above
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7. A current density of is used for large power transformers with forced circulation of oil or with water cooling coils       is used for large power transformers with forced         (A) 1.5 to 2.5 A/mm <sup>2</sup> (B) 3.5 to 4.5 A/mm <sup>2</sup> (C) 4.0 to 5.0 A/mm <sup>2</sup> (D) 5.4 to 6.2 A/mm <sup>2</sup>
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9. In D.C. machine the current per brush arm should not be more than (A) 100 A (B) 200 A (C) 300 A (D) 400 A Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.



10. Which of the following methods may be adopted to reduce the effects of armature reaction?

(A) Increase in length of air gap at pole tips (B) Increasing reluctance of pole tips

(C) Compensating windings

(D) All of the above

11. In D.C. machines, air order to prevent excessive distortion of field form by the armature reaction, the field mmf must be made

 $(\mathbf{A})$  Equal to that armature mmf (B) Less in comparison with the armature mmf targe in comparison with the armature mmf (D) None of the above

12. The weight of copper of both armature and field windings decreases with in number of poles.

(A) Increase Decrease (C) Either of the above (D) None of the above

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Il of the above

14. A practical formula for determining the thickness of insulation between low voltage and high voltage winding is

- $4 + 0.7 \, \text{kV} \, \text{mm}$
- (A) 1 + 0.2 kV mm (B) 2 + 0.5 kV mm (D) 5 + 0.9 kV mm
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(A) Distribution transformers (C) Shell type transformers

ower transformers (D) None of the above

Dr. G. Balakrishnan, M.E., Ph.D., **Principal** Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

#### 17. Dummy coil should not be used in

(C) Fither (A) or (B)

(A) Small machines

(B) Large machines (D) None of the above

#### 18. Which of the following is the commonly used type of electromagnets?

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#### 19. Which of the following methods does not take into account the maximum temperature rise under variable load conditions?

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#### 20. Machines cooled by direct cooling method may be called

(A) "Supercharged"

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## 21. Which of the following methods is used for air cooling of turbo-alternators?

- (A) One sided axial ventilation
  - (C) Multiple inlet system

(B) Two sided axial ventilation (D) All of the above

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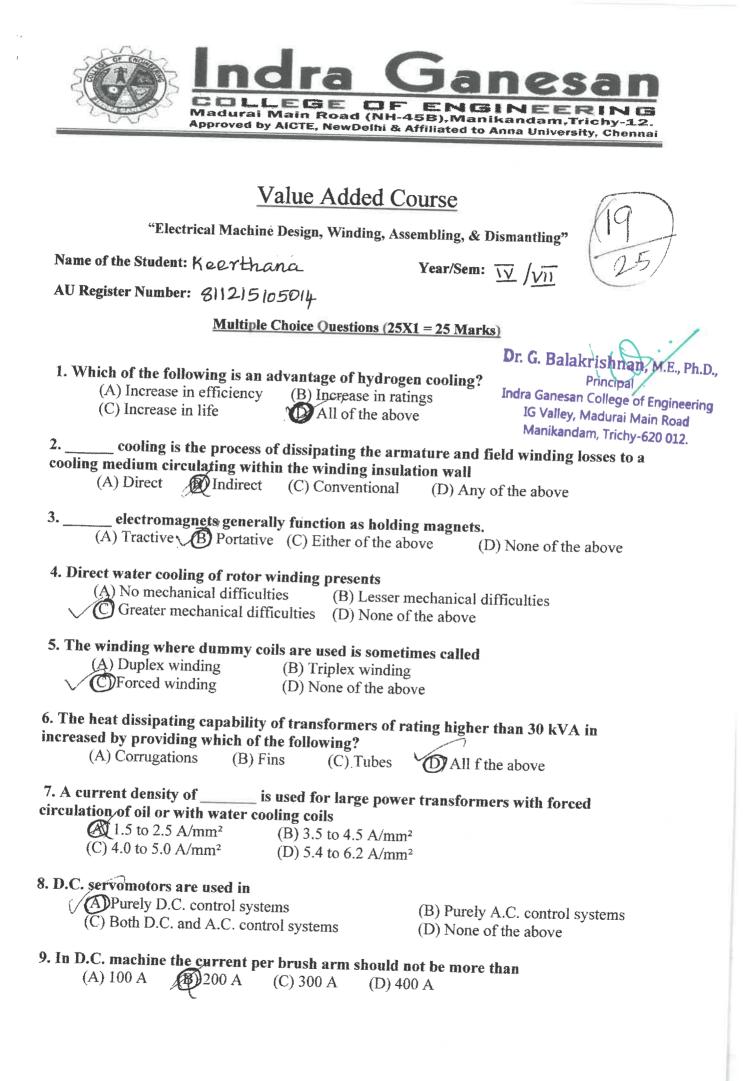
(A) 200 to 400 r.p.m. (C) 1000 to 1500 r.p.m.

(B) 600 to 1000 r.p.m. (D)2000 to 2500 r.p.m.

#### has low-relative permeability and is used principally in field frames 25. when cost is of primary importance and extra weight is not objectionable.

- (A) Cast steel
- (B) Aluminium
- (C) Soft steel

(D) Gast iron





10. Which of the following methods may be adopted to reduce the effects of armature reaction?

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(D) None of the above

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(D) All of the above

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(A) 1 + 0.2 kV mm (B) 2 + 0.5 kV mm(C) 4 + 0.7 kV mm (B) 5 + 0.9 kV mm

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(B) Never 2-layer type(D) None of the above

B Power transformers

 $(\widetilde{D})$  None of the above

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

#### (C) Shell type transformers

16. Helical windings are used in

17. Dummy coil should not be used in

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(C) Either (A) or (B)	(

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# 25. \_\_\_\_\_ has low-relative permeability and is used principally in field frames when cost is of primary importance and extra weight is not objectionable.

- (A) Cast steel
- Aluminium (C) Soft steel

(D) Cast iron

Dr. G. Balal an, M.E., Ph.D., cipal

Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Thony-620 012





## **Department of Electrical and Electronics Engineering**

Academic Year 2018-2019 - Odd Semester

## VALUE ADDED COURSE ASSESMENT SHEET

## Electrical Machine Design, Winding, Assembling, & Dismantling

S.NO	REG NO	STUDENTS NAME	YEAR/	Attenda	nce Details	VAC-M	ICQ TEST	OVERALL
· ···· Models +,		STUDENTS NAME	BRANCH	No. of Hours Attended	Attendance Mark(100)	No of Correct	MCQ Mark(100)	MARK(100) (50% of A + 50% of B)
	811215105001	AMUDHA. M	IV/EEE	30	(A)	Answers	<u>(B)</u>	without the part of the second second
2	811215105002	ANAND.V	te alveditação, ab consigning a		100	20	80	90
3	811215105003	BALACHANDRAN. M	IV/EEE	27	90	21	84	87
4	811215105004	BHUVANESWARI, A	IV/EEE	30	100	20	80	90
5	811215105005	- Mandel y obligation and the second process and second and and the	IV/EEE	27	90	21	84	87
6	I consider and the second seco	DEEPA RAGAVI.M	IV/EEE	27	90	18	72	81
	811215105006	FATHIMA SELVI. C	IV/EEE	27	90	19	76	deservativespectral state approximation
7	811215105007	GAJALAKSHMI. B	IV/EEE	30	100			83
8	811215105008	GAYATHRI. R	IV/EEE	27	ter anterest and the strength and	20	80	90
9	811215105009	GOMATHI. S	and the set of the set	www.weigerig	90	20	80	85
10	811215105010	GOMATHY. M	IV/EEE	30	100	21	84	92
11	811215105011	GOPINATH. R	IV/EEE	30	100	18	72	86
12	And a state a set water and the set		IV/EEE	27	90	19	76	83
13	811215105012	GUNASEELAN. M	IV/EEE	27	90	20	80	85
	811215105013	JERALD FELIX. A	IV/EEE	30	100	21		No Free range used appropriation destes
14	811215105014	KEERTHANA. K	IV/EEE	30	100	an one and a second second second	84	92
15	811215105015	MANIKANDAN, M	IV/EEE	27		18	72	86
			A VILLAL	41	90	19	76	83



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COLLEGE OF ENGINEERING Madural Main Road (NH-45B), Manikandam, Trichy-12. Approved by AICTE, NewDelhi & Affiliated to Anna University, Chennal

Dr. G. Balakrishnan, M.E., Ph.D., Principal

Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

S.NO	BEGNO		YEAR/	Attenda	nce Details	VAC-M	ICQ TEST	OVERALL
5.10	REG NO	STUDENTS NAME	BRANCH	No. of Hours Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100) (B)	MARK(100) (50% of A + 50% of B)
16	811215105016	MEENA. S	IV/EEE	24	80	20	80	80
17	811215105017	MEENAKSHI. P	IV/EEE	24	80	21	84	82
18	811215105018	MOHAMED ANSARI. A	IV/EEE	27	90	22	88	89
19	811215105019	MOHAMED IBRAHIM. A	IV/EEE	30	100	20	80	90
20	811215105020	NIVETHA. B	IV/EEE	27	90	21	84	87
21	811215105021	PRASANTH. R	IV/EEE	24	80	20	80	80
22	811215105022	PRIYA. G	IV/EEE	27	90	21	84	87
23	811215105023	PRIYANKA. P	IV/EEE	30	100	20	80	90
24	811215105024	SATHEESWARI. P	IV/EEE	30	100	21	84	92
25	811215105025	SATHISHBABU. K	IV/EEE	27	90	21	84	87
26	811215105026	SATHIYAPRIYA. M	IV/EEE	24	80	20	80	80
27	811215105027	SELASTEENA RANI. J	IV/EEE	27	90	21	84	87
28	811215105028	SHALINI. M	IV/EEE	30	100	20	80	90
29	811215105029	SIVA RAMAN. M	IV/EEE	27	90	19	76	83
30	811215105030	SIVASAKTHI.A	IV/EEE	30	100	18	72	86
31	811215105031	SOPHIYA. T	IV/EEE	30	100	21	84	92
32	811215105032	SRI GAYATHRI. M	IV/EEE	27	90	18	72	81
33	811215105033	TAMILSELVI.M	IV/EEE	24	80	20	80	80
34	811215105034	VANITHA. R	IV/EEE	24	80	20	80	80
35	811215105035	VANITHA. S	IV/EEE	27	90	18	72	81



Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

S.NO	REG NO	CUTTING BUSICES AND	YEAR/	Attenda	nce Details	VAC-M	ICQ TEST	OVERALL
alan wandara, dajiray mg		REG NO STUDENTS NAME	BRANCH	No. of Hours Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100)	MARK(100) (50% of A + 50% of B)
36	811215105036	VASUMATHI. V	IV/EEE	30	100	18	72	86
37	811215105037	VIGNESHWARAN. N	IV/EEE	27	90	19	76	, a mechanical of a substantion we become
38	811215105038	VIJAYALAKSHMI. R	IV/EEE	24	80	21	84	83
39	811215105039	VINOTH. S	IV/EEE	30	100	21	won same you i wa tantamar samana rayyyaana	82
40	811216105001	ΑΤΤCHAYAAK	III/EEE	27	90	21	84	92
41	811216105003	BENAZIR M	III/EEE	24	80	$\frac{21}{20}$	84	87
42	811216105004	GUNA SEELAN D	III/EEE	27	90	www.co. pro instagramment	80	80
43	811216105005	HARI GOWTHAM M	III/EEE	30	100	21	84	87
44	811216105006	HARIHARAN B	III/EEE	27	90	20	80	90
45	811216105007	ISWARYA K	III/EEE	30	Man, an Meaning second Made Spectrological	19	76	83
46	811216105008	KALISTA P	III/EEE III/EEE	30	100	18	72	86
47	811216105009	KHAJAMOINUDEEN S	* where we we we and	Participation was a well and a relation	100	21	84	92
48	811216105010	KIRUTHIKA B	III/EEE	27	90	18	72	81
49	811216105011	LOURDHU MARY D	III/EEE	24	80	20	80	80
50	811216105012	MARIA SHOBANA J	III/EEE	24	80	20	80	80
51	811216105014	MERLIN REETA P	III/EEE	27	90	18	72	81
52	811216105015	NIROSHINI R	III/EEE	30	100	18	72	86
53	811216105016	NITHING A	III/EEE	27	90	19	76	83
54	811216105017	and a second and a second s	III/EEE	24	80	21	84	82
55	811216105018	PAVENTHAN A	III/EEE	27	90	20	80	85
55	011210103018	PRAVEEN KUMAR M	III/EEE	30	100	21	84	92

Approved by AICTE, NewDeihi & Affiliated to Anna University, Chennel

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Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

S.NO	REG NO		YEAR/	Attenda	nce Details	VAC-M	ICQ TEST	OVERALL
Ketuana ang sidawan		DI ODENIS NAME	BRANCH	No. of Hours Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100) (B)	MARK(100) (50% of A + 50% of B)
56	811216105019	PRISILLA PRIYANKA	III/EEE	27	90	18	72	81
57	811216105020	RAJA V	III/EEE	30	100	19	76	88
58	811216105021	RATHINA RAJ R	III/EEE	30	100	20	80	90
59	811216105023	RESHMI D	III/EEE	27	90	19	76	83
60	811216105024	ROOBINI S	III/EEE	30	100	19	70	86
61	811216105025	SURESH K	III/EEE	30	100	21	84	92
62	811216105026	SURIYA PRAKASH K	III/EEE	27	90	18	72	<u>92</u> 81
63	811216105027	TAMILARASAN M	III/EEE	24	80	20	80	and and the second state of the
64	811216105028	TAMILAZHAGAN M	III/EEE	24	80	20	80 84	<u>80</u> 82
65	811216105029	VINOTH R	III/EEE	27	90	22	88	89
66	811216105302	PARKAVI S	III/EEE	30	100	18	72	<u>86</u>
67.	811217105005	ARUL JOY ASHA A	II/EEE	27	90	18	72	83
68	811217105006	ARUN SEBASTIN P	II/EEE	24	80	21	84	83
69	811217105007	BHARTHASARATHI M	II/EEE	27	90	20	80	85
70	811217105008	CHITHRA P	II/EEE	30	100	21	80 84	92
71	811217105009	DEEPIKA G	IL/EEE	27	90	18	72	
72	811217105010	EZHUMALAI A	II/EEE	30	100	10	76	81
73	811217105011	GAYATHRI K	II/EEE	30	100	19	70	88
74	811217105012	GAYATHRI S	II/EEE	30	100	21	84	86
75	811217105013	KANIMOZHI S	II/EEE	27	90	21	<u>84</u>	<u>92</u> 87

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Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering Io Valley, Moderai Main Road Manikandam, Trichy-620 012.

S MO	THE NO		YEAR/	Attenda	nce Details	VAC-M	ICQ TEST	OVERALL
S.NO	REG NO	STUDENTS NAME	BRANCH	No. of Hours Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100) (B)	MARK(100) (50% of A + 50% of B)
76	811217105014	KEERTHANA S	II/EEE	24	80	20	80	80
77	811217105015	KUMARIVALLI T	II/EEE	27	90	21	84	87
78	811217105016	MADHUMITHA S	U/EEE	30	100	20	80	90
79	811217105017	MANO K	II/EEE	27	90	18	72	81
80	811217105018	MEKALA M	II/EEE	30	100	18	72	86
81	811217105020	PAVITHRA S	II/EEE	30	100	21	84	92
82	811217105021	PRAVEEN RAJ R	II/EEE	27	90	18	72	81
83	811217105022	RAJASEKAR N V	II/EEE	24	80	20	80	80
84	811217105023	REVATHI P	II/EEE	24	80	20	84	82
85	811217105024	RISHON GURU M	II/EEE	27	90	22	88	89
86	811217105026	SANTHOSH K.	II/EEE	30	100	18	72	86
87	811217105027	SRIKUMAR M S	II/EEE	27	90	10	76	83
88	811217105028	SRI LOGESH C	II/EEE	24	80	20	80	80
89	811217105029	SUBHA T	II/EEE	24	80	20	84	82
90	811217105031	VALARMATHICC	II/EEE	27	90	21.	88	89
91	811217105032	VISWANATH R	II/EEE	30	100	18	72	and the second
92	811217105301	SANJEEV KUMAR R	II/EEE	27	90	10	72	86 83

D. Pormathi VAC Coordinator

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Gr. Malathi HoD/EEE



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Title:	"Electrical M	lachine D	esign, Wind	ing, Assemblin	g, & Dismantlin	
Resource Persons:	1.Mr.Kavitha, I Smart Power Ca Thillai Nagar, T	Design Engare,				
Date of conduct from :	10.12.2018	To:	14.12.201	8 Duration:	30 Hours	
Organized Department :	Electrical and I	Electronic	s Engineeri	ıg		
Participant Year:	2,3,4		No. of Students Registered 92			
Venue:	EEE II and III yr	Classroon	ns			
<ul> <li>Analyze the</li> <li>Analyze the :</li> </ul>	core calculation an air gap calculation.	d the numi		igs.		
<ul> <li>Analyze the a</li> <li>Analyze the a</li> <li>Acquire know</li> </ul>	core calculation an air gap calculation. wledge in designing the importance and	d the numi g of transfe	ber of windir ormer windir machines br	igs.	s and tubes lications.	
<ul> <li>Analyze the a</li> <li>Analyze the a</li> <li>Acquire know</li> </ul>	core calculation an air gap calculation. wledge in designing the importance and A: securing more the ole to receive the co	d the numi g of transfe design of ssessment an 70% c ertificate fo	ber of windir ormer windir machines ba <b>Process</b> on total scor or the VAC o	egs. sed on their app and secured r ourse conducted	lications. nore than 75%	

Dr. G. Balakrish an, M.E. Ph.D., Principa

Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.



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Title:	"Electrical M	lachine De	sign, Windi	ng, Assembling, 8	2 Dismantling	
Resource Persons:	1.Mr.Kavitha, Design Engineer, Smart Power Care, Thillai Nagar, Trichy.			2.C.Rajesh Khanna, Trainer Smart Power Care, Thillai Nagar, Trichy.		
Date of conduct from :	10.12.2018	To:	14.12.2018	Duration:	30 Hours	
Organized Department :	Electrical and El	ectronics I	Ingineering			
Participant Year:	2,3,4		No. of Registe	Students	92	
Venue:	EEE II and III yr C	lassrooms		hadro kan		
	19	Sample Ph	iotos			
				+		
Pomatei-		L. Ma IoD/EEE	Latty:		Tinsijai	
		IoD/EEE			A	

IG Valley, Madurai Main Road Manikandam, Trichy-620 012.



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## **CERTIFICATE OF PARTICIPATION**

This is to certify that Ms. PRIYANKA. P, IV Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Principal IGCE







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## **CERTIFICATE OF PARTICIPATION**

This is to certify that Mr. JERALD FELIX. A, IV Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Principal IGCE



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### **CERTIFICATE OF PARTICIPATION**

This is to certify that Ms. KEERTHANA. K, IV Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Principal IGCE







### **CERTIFICATE OF PARTICIPATION**

This is to certify that Ms. MEENA. S, IV Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Principal IGCE







This is to certify that Mr. PRASANTH. R, IV Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

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Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Mr. SIVA RAMAN. M, IV Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Mr. GUNA SEELAN D, III Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Principal IGCE

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Mr. KHAJAMOINUDEEN S, III Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Ms. MARIA SHOBANA J, III Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Mr. PAVENTHAN A, III Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Principal IGCE

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.







This is to certify that Mr. RAJA V, III Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Principal IGCE

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Mr. TAMILARASAN M, III Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Mr. ARUN SEBASTIN P, II Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Principal IGCE

Dr. G. Balakrishnan, M.E., Pn.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Ms. DEEPIKA G, II Year, EEE has successfully completed the Value Added Course on "**Electrical Machine Design, Winding, Assembling, & Dismantling**" organized by Department of Electrical & Electronics Engineering of our Institution in Association with **Smart Power Care** from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.







This is to certify that Mr. MANO K, II Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

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This is to certify that Ms. PAVITHRA S, II Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balak Tishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Principal IGCE







This is to certify that Mr. RISHON GURU M, II Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Principal IGCE







This is to certify that Mr. SRIKUMAR M S, II Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Principal IGCE







This is to certify that Ms. VALARMATHI C, II Year, EEE has successfully completed the Value Added Course on "Electrical Machine Design, Winding, Assembling, & Dismantling" organized by Department of Electrical & Electronics Engineering of our Institution in Association with Smart Power Care from 10<sup>th</sup> December 2018 to 14<sup>th</sup> December 2018 (5days) during the Academic year 2018-2019.

Smart Power Care Mr.R.BHASKAR Chief Executive Officer.

Dr. G. Balakrishnan, M.E., Ph.D., Principal Indra Ganesan College of Engineering IG Valley, Madurai Main Road Manikandam, Trichy-620 012.

Principal IGCE