

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 ELECTRONICS AND COMMUNICATION 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	PCB	DESI	GNING							
Resource Person: Tra Tra Hita		Tech Mr.F Train	key Infosys,	in,						
Date of conduct from:		m:	17.06.2019 To: 21.06.2019				Duration:	30 Hours		
Organized Departme		nent:	ent: ELECTRONICS AND COMMUNICATION ENGINEERING							
Participan	rticipant Year: ECE IV, III, II Semester: ODD No. of Students Registered:		Registered:	72						
Venue:	DSP Lab									

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Department of Electronics and Communication Engineering Academic Year 2018-2019 –ODD Semester

03.12.18

DEPARTMENT CIRCULAR

Department of Electronics and Communication Engineering in association with Galwin Technology is going to organize Value Added Course for all Second, Third and Final year students on "**PCB DESIGNING**" 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.

	1.Mr.K.C.TamilVendhan,
	The Human Resource Manager,
	Galwin Technology,
Resource Persons	Trichy
	2.Mr.Deepan
	Trainer
	Galwin Technology,
	Trichy
Venue	DSP lab and Optical Lab, ECE

HOD/ECF

IPAL

Cc:

- Principal Office
- IQAC Coordinator
- Class In-charges-II,III&IV-Year
- II,III &I V-Year ECE Students
- Office File
- Notice Board

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



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

Value Added Course on "PCB DESIGNING"

S.NO	D TOPICCOVERED	DURATION	DATE
		(inhours)	
1	Resistor types, Capacitor types, Diode types, LED, Sevensegment, Timer 555A	3	10.12,2018
2	Stable and mono stable circuits, Transistor As a switch, Relays, Op-amp in comparator mode	3	10.12.2018
3	Introduction to Installation of EAGEL software, Designing of PCB schematic with Leaded components,	3	11.12.2018
4	Documentation using ERC, Direct Board file creation for DC power supply circuit	3	11.12.2018
5	RELAYDRIVERCIRCUIT BOARD	3	12.12.2018
6	Designing of PCB layout technique with leaded components, Documentation using DRC, Auto Routing techniques,	3	12.12.2018
7	Gerber file creation for your board file, Polygon, New component creation technique	3	13.12.2018
1	Layer study, Double layer creation, Multi Layer creation and script, making of a PCB of DC power supply circuit	3	13.12.2018
	Drilling, Soldering of components and Testing of DC power supply circuit	3	14.12.2018
)	Fabrication of PCB designing, Testing and trouble shooting of MINI PROJECT circuit	3	14.12.2018
	Exam	1	
	Total Hours(Excluding Exam)	30	14.12.2018

SYLLABUS

ak

VAC Coordinator

Nolage HOD/ECE





Value Added Course

"PCB DESIGNING"

STUDENTS PARTICIPATION LIST

S.NO	O REG NO	STUDENTS NAME	E YEAR/ BRANCH	
1	811215106002	Abinethri.J	IV/ECE	
2	811215106004	Anitha.B	IV/ECE	
3	811215106007	Balaji.S	IV/ECE	
4	811215106008	BarjanaBarveen.N	IV/ECE	
5	811215106009	Bhagya.D	IV/ECE	
6	811215106010	Dhivyapriya.S	IV/ECE	
7	811215106011	FairoseBegum.A	IV/ECE	
8	811215106012	Farsana.K	IV/ECE	
9	811215106013	Gomathi.M	IV/ECE	
10	811215106014	HabeebBanu.M	IV/ECE	
11	811215106015	Hemalatha.K	IV/ECE	
12	811215106016	JaheerHussain.K	IV/ECE	
13	811215106017	JancyRani.K	IV/ECE	
14	811215106018	Jayasri.A	IV/ECE	
15 811215106019		Juliet Vanitha.S	IV/ECE	
16	811215106020	Kalaiselvi.R	IV/ECE	
17	811215106021	Karthick.R	IV/ECE	
18	811215106023	Krishnaveni.K	IV/ECE	
19	811215106024	Madhu.M	IV/ECE	
20	811215106025	Malarvizhi.R	IV/ECE	
21	811215106026	Manikandan.S	IV/ECE	
22	811215106027	Meena.V	IV/ECE	
23	811215106028	MohamedYasin.M	IV/ECE	
24	811215106029	Nandhini.R	IV/ECE	
25	811215106030	NasithaBanu.S	IV/ECE	
26	811215106032	Prabhu.M	IV/ECE	
27	811215106033	Priya.K	IV/ECE	
28	811215106034	Priya.M	IV/ECE	
29	811215106035	Priyadharshini.K	IV/ECE	
30	811215106037	Rafeek.M	IV/ECE	
1	811215106038	Rajapalikhan. K	IV/ECE	
2	811215106039	Ramya.G	IV/ECE	
3 1	811215106040	Sachin.R	IV/ECE	
4 8	811215106042	Saraswathi.A	IV/ECE	



ndra Ganesan

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

S.NO REG NO		STUDENTS NAME	YEAR/	
35		Saraswathi.R	BRANCH	
36 811215106044		Shalini.G	IV/ECE	
37		Subramani.M	IV/ECE	
38	and the set of the second seco	SujiEvangelinJasmine.S	IV/ECE	
39	and for an and the second s	Surya.N	IV/ECE	
40	a data a second a second se	Vijay.G	IV/ECE	
41	811215106050	Sathya.R	IV/ECE	
42	811216106001	AbarnaT	III/ECE	
43	811216106002	AmsavalliS	III/ECE	
44	811216106003	AnushyaS	III/ECE	
45	811216106004	Arockia NivethaS	III/ECE	
46	811216106005	AshefaN	III/ECE	
47	811216106006	DhanalakshmiT	III/ECE	
48	811216106008	FeminaBegum A	III/ECE	
49	811216106009	GayathriJ	III/ECE	
50	811216106010	Joysefshiba J	III/ECE	
51	811216106011	Keerthana P	III/ECE	
52	811216106012 Keerthana S		III/ECE	
53	811216106013	Keerthika D	III/ECE	
54	811216106014	Lathasri S	III/ ECE	
55	811216106015	Menaka R	III/ ECE	
56	811216106016	Mithra P	III/ ECE	
57	811216106017	Mohan Raj S	III/ ECE	
58	811216106018	Nilavar Nisha F	III/ ECE	
59	811216106019	Pavithra P	III/ ECE	
60	811216106020	Pavithra V	III/ ECE	
61	811216106021	Prabhu A	III/ ECE	
62	811217106001	Aishwariya S	II/ECE	
63 [811217106002	Aneesha A	II/ECE	
54	811217106003	Deepika B	II/ECE	
55	811217106004	Durga D	II/ECE	
56	811217106005	Gangadevi M	II/ECE	
57	811217106006	Janan iC	II/ECE	
8	811217106009	Karthick K	II/ECE	
9	811217106010	Kosiananth R	II/ECE	
0	811217106011	Lakshmi M	II/ECE	
1	811217106012	Manikandan M	National Action of the second	
···· ,	811217106013	Mekala Devi S	II/ECE II/ECE	

VAC Coordinator

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

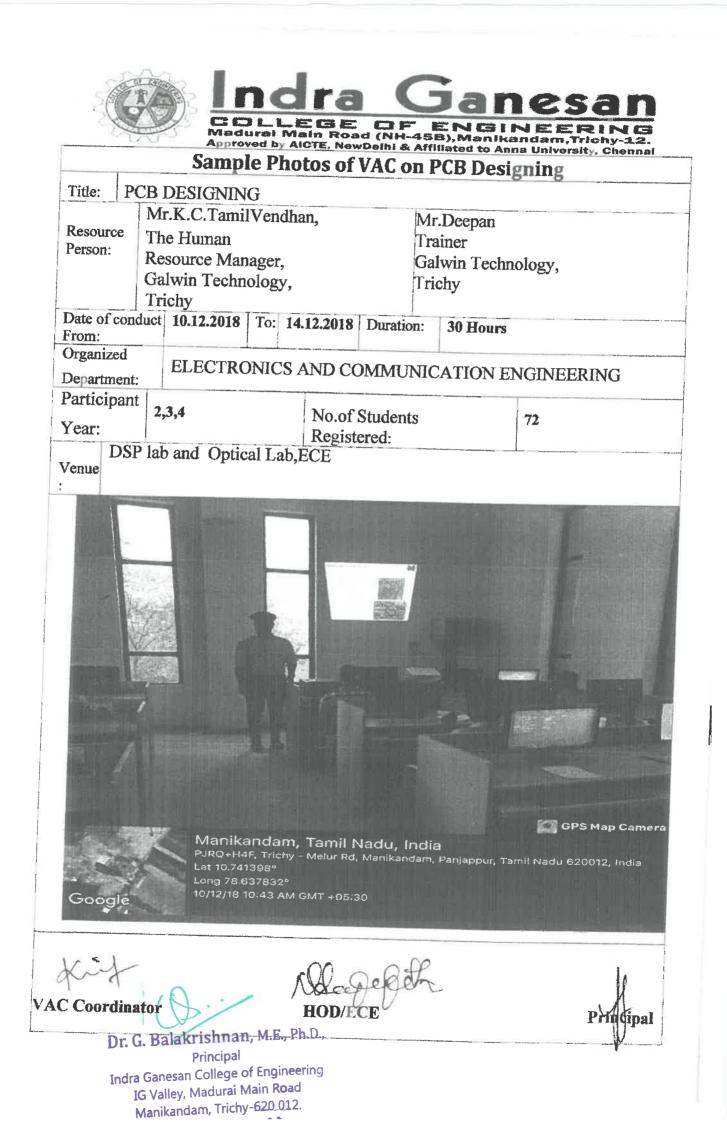
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COLLEGE OF ENGINEERING Madural Main Road (NH-458), Manikandam, Trichy-12. Approved by AICTE, NewDelhi & Affiliated to Anna University, Chennai

		Report	on Va	lue Add	ed Cours	e
Title: P	CB DESIGNIN		the second	(Servit) colonan addages dawned		Phendersenality of some blackbacky-yiphiga - wave
Resource Person:	ilVendhar nager, nology,	1,	Ti G	Mr.Deepan Trainer Galwin Technology, Trichy		
Date of cone From:	Trichy duct 10.12.2018	To: 14.1	2.2018	Duration:	30 Hours	a horge Volue
Organized Department:	ELECTR	ONICS A	ND CO	OMMUNI	CATION E	NGINEERING
Participant Year:	t 2,3,4		No.of Regist	Students ered:		72
 Expla Know Explain 	un une basic conc	characteris epts of PCE of EAGELS chniques an	tics of I B schem SOFTW Id Gerbe	ED, Seven atic and Rel ARE& creations of the creations	segment, Tin ay Driver Cir ion of DC Po	ner555andOp-amp cuit Board wer Supply Circuit
• Devel	op the trouble sho	oting of MIN	IPROJE	CT circuit		ut
ATPRATO IO I	vouve and contain	vale for me	VAUC	Olitee condu	ntod	an75%inattendance is inVACoutof 100
Vil-			00		~	ž
C Coordin	ator	/	HOD/E	CE CE	K	Principa







Name of the Student:

Year/ Sem:

AU Register Number:

Value Added Course on "PCB DESIGNING"

MCQ QUESTIONS (25X1 = 25 Marks)

1. Which phenomenon is not reduc	ced by the circuit paths of lowest impedance especially
provided by power and return planetation a) Radiation	b) Convection
c) Noise	d) Crosstalk
2. High current circuits are purpos	ely located or placed near the adde of DC Pin
accordance to the supply lines to	r
a) Removal of heat	b) Isolation of stray current
c) Reduction of path length	d) All of the above
3. Which among the below stated so	oldering methods is also renowned as 'High Frequency
Accounter Dougering :	C C C C C C C C C C C C C C C C C C C
a) Iron Soldering	b) Furnace Soldering
c) Torch Soldering	d) Electrical Soldering
4. Which among the below mention Testing?	ed approaches belongs to the category of In-circuit
a) Impedance Testing	b) Component Testing
c) Apply Signal and check output	d) All of the above
5. Which type of solder ability testin	g is carried out for the generation of colden commute
and to intractation of which of alleft	metal specimen in a bath of molten solder?
a) Solder Datit Testing	b) Meniscus Rise Testing
c) Solder Iron Testing	d) Note of the above
6. What is / are the necessity / is to p	rovide guarding to precision differential amplifiers?
a) To increase leakage resistance	 b) To reduce capacitance between signal conductors & ground
c) Both a and b	d) None of the above
7. Which among the below mentioned	assertions is not away of cross-talk reduction while
designing digital PCBs?	a deber tions is not away of cross-taik reduction while
a) Decrease in the distance between conductors	b) Shielding of clock line switch guard strips
c) Reduction in the loop area of	d) A void running of parallel traces for longer
circuits	distances especially for normalized and size at
8. Which among the below mentioned Outline Package'?	packages does not belong to the category of 'Small
a) SO	b) SOP
c) SOT	d) SON
	ssertions is not grounding consideration associated
with ADC as well as DAC?	sociated associated
a) Analog side to analog ground	b) Digital side to digital ground
c) Use of separate power supply and	d) Reduction of inductive loop area between power
connection of their ground leads	and return traces
to single point reference	18.
10. Which among the below stated	devices / equipments are preferred for elimination
of ground and supply line noise espe	cially in TTL/CMOS / ECL PCB designing2-ishnan, M.E., Ph.D.,
	cially in TTL/CMOS / ECL PCB designing rishnan, M.E., Ph.D., Dr. G. Balarrishnan, M.E., Ph.D.,
	of Engineering
	DI. G. Derincipal Principal Indra Ganesan College of Engineering Main Road
	Indra Ganesan College Of Engl IG Valley, Madurai Main Road IG Valley, Madurai Trichy-620 012.
	IG Valley, Madural Walley Manikandam, Trichy-620 012-

JAC.	
CAR & CON-	ndra (jangean
	ndra Ganesan
Appr	Iurai Main Road (NUL and INCERING
	Chennai
a) Coupling capacitor c) Snubber circuits	b) Decoupling capacitor
	d) All of the above
	the below specified condition is precise in the cross talk verification ic flow in opposite direction with the limit of avoiding dangerous PCB designing?
	PCB designing?
a)Z _{even} >Z _{odd} c)Z _{odd} ≥0.8Z _{even}	b) $Z_{odd} \ge 0.5 Z_{even}$
	d) $Z_{odd} = Z_{even}$ gy of PCB represents a thin photo-sensitive polymer by
T.L	hic pattern of single traces or IC pads for etching?
a) i topice	b) Etching
c) Photo-resist 13. Which problems	d) Solder mask
manner for digital circ	are about to occur if PCB is not designed properly in a confined
	raction C) Ground & Supply-line Noise D) Electromagnetic
	c) around to supply-line Noise D) Electromagnetic
a) A&B c) C&D	b) B&C
	d) A,B,C, D
	llowing assists in obtaining the desired value of wave impedance e designing digital PCBs?
A) width of signal line	s B) Distance between signal line and ground line C) Signal Delays
D) Double Pulsing a) A&B	
c) C&D	b) B&C d) A,B,C, D
15. What should be the r	esistance of 0.6 mmwideconductor with 15
thickness of standard co a) 118.2mΩ	$p = 1.7241 \times 10^{\circ} (at 20^{\circ} C)$
c) 172.4mΩ	b) 138.2mΩ d) 192.4mΩ
16. The actual cost of P	CB can be evaluated on the basis of
a) I CD Size & material	b) Number of layers
c) Vi as on PCB 17. Which factors contr	d) All of the above
a) Resonance	ibute to the occurrence of mechanical stress?
c) Both a and b	b) Cracked Solder Joints d) None of the above
18. Which type of PCB	requires minimum soldering on company of the table
avoid replacement oriente a) Single-sided PCB	a anneumes.
c) Both a and b	b) Double-sided PCB d) None of the above
19. What effects can be o	bserved if the senarate person of the senarate
a) Increase in self-inductance	cting surfaces for better decoupling in PCB layouts?
c) Reduction in self-inductance	b) Reduction in self-inductance
e) Stability in self-inductance	D None of the above
20. Which terminology of P	CB represents a thin photo-sensitive polymore by successful
Tante Brahme harter II of SIT	gle traces or IC pads for etching?
a) Prepreg c) Photo-resist	b) Etching
	d) Solder mask w mentioned packages does not belong to the category of
'Small Outline Package'?	in memorie packages does not belong to the category of
a) SO	b) SOP
c) SOT	d) SON
22. Which type of solder abil	ity testing is carried out for the generation of solder
a) Solder Bath Testing	b) Meniscus Rise Testing Dr. G. Balakrishnan, M.E., Ph.D.,
	Indra Ganesan College of Engineering
	IG Valley, Madura Marikandam, Trichy-620 012. Manikandam, Trichy-620 012.



c) Solder Iron Testing d) None of the above

23. Which among the below stated soldering methods is also renowned as 'High Frequency Resistance Soldering'?

b)	Furnace	Soldering
----	---------	-----------

c) Torch Soldering

a) Iron Soldering

d) Electrical Soldering

24. Which among the below mentioned approaches belongs to the category of In-circuit Testing?

a) Impedance Testing	b) Component Testing
c) Apply Signal and check output	d) All of the above

25. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for______

a) Removal of heat

c) Reduction of path length

b) Isolation of stray current

d) All of the above



Value Added Course on "PCB DESIGNING"

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

ANSWER KEY

Luis

VAC Coordinator



Name of the Student: Meena	\sim	Vear/Sem: IN / VI
AU Register Number: 811211	5106027	
Value Added C	ourse on "PCB DESIGNING	· (19)
MCO OUE	<u>STIONS (25X1 = 25 Marks)</u>	
 Which phenomenon is not reduce provided by power and return plane a) Radiation 	d by the circuit paths of lowest imposes for shielding purposes?	dance opecially
c) Noise	d) Crosstalk	
2. High current circuits are purpose	UP CIUNSIAN Is located on placed mean the adment	DC Dim
accordance to the supply lines for	is located or placed hear the edge of	- I'\ 1310
or Removal of heat	b) Isolation of stray current	
c) Reduction of path length	d) All of the above	
3. Which among the below stated so	doring mothods is also nanou ned as	48 82
Resistance Soldering'?	dering methods is also renowned as	mga rrequency
a) Iron Soldering	b) Furnace Soldering	
c) Forch Soldering	. N.	
	Ld Petrical Soldering	
4. Which among the below mentione Testing?	a approaches belongs to the categor	y of In-circuit
a) Impedance Testing		
c) Apply Signal and check output	b) Component Testing	
S Which type of solder shifts testin	Lef All of the above	
5. Which type of solder ability testin	g is carried out for the generation of	solder sample
Solder Bath Testing	metal specimen in a bath of molten	iolder?
c) Solder Iron Testing	b) Meniscus Rise Testing	
	d) None of the above	
6. What is / are the necessity / is to pl a) To increase leakage resistance	rovide guarding to precision differen	itial amplifiers?
	b) To reduce capacitance betw	an stang
Both a and b	conductors & ground	
	d) None of the above	
7. Which among the below mentioned designing digital PCBs?	assertions is not away of cross-talk	reduction while
27 Decrease in the distance between conductors	b) Shielding of clock line switch	and and the second second
c) Reduction in the loop area of	d) A void running of parallel trace	an East the second
circuits	distances especially for asynch	na na na na na
8. Which among the below mentioned	I nackages does not belong to the and	CONTRACTOR SUCCESSION
Outline Package'?	· 3 • • • • • • • • • • • • • • • • • •	ickory of Scitati
a) SO	b) SOP	
c) SOT	h) SOP-7	
9. Which among the below specified a	sertions is not grounding consider	
with ADC as well as DAC?)	mon association
a) Analog side to analog ground	Depicital side to digital ground	
 c) Use of separate power supply and connection of their ground leads to single point reference 	d) Reduction of inductive toop area and return traces	
10. Which among the below state of ground and supply line noise csp	d devices / equipments are preferred ecially in TTU/CMOS / ECU PCB d	l for climination exigning?
	Dr. G. Balakrishnan, M	l.E., Ph.D.,

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

	د در در از می از می وارد از می از می وارد و از ماه از می وارد و از م	
- The I		
173/3	ndra (Jar	iesan
E CONTRACTOR	OLLEGE OF ENGI	NEERING
App	roved by AICTE. NewDelhi & Affiliated to Ar	
a) Coupling capacitor		
a Snubber circuits	d) All of the above	
	the below specified condition is precise in the	
interference in digita	gic flow in opposite direction with the limit o I PCB designing?	t heatoing nungerous
a)Zzzen Zodi	b) Zode 0.5 Zoo	
CATTASY 0.8Zeven	d) Zndj= Znon	
	ogy of PCB represents a thin photo-sensitive p	
a) Prepreg	phic pattern of single traces or IC pads for etc b) Etching	ning:
c) Photo-resist	Arsolder mask	
	s are about to occur if PCB is not designed pro	nerly in a confined
manner for digital cit	cuits?	
A) Diffraction B) R Interference	efraction C) Ground & Supply-line Noise D) El	ectromagnetic
a) A&B	b) B&C	
CAD	d) A,B,C, D	
	following assists in obtaining the desired value	e of wave impedance
	ile designing digital PCBs? nes B) Distance between signal line and ground 1	ina Ci Signal Dalai c
D) Double Pulsing	tes by Distance between signal line and ground t	ine Cy Signal Delays
a) A&B	b) B&C	
DICAD	d) A,B,C, D	
15. What should be the	e resistance of 0.6 mmwideconductorwith 15 cm	nlengthand25 µm
a) $118.2m\Omega$	copper foil? (Assume ρ = 1.7241 x 10 ⁻⁴ (at 20° C b) 138.2mΩ	
STT3.Ams	d) 192.4mΩ	$i(\mathbf{b})$
	PCB can be evaluated on the basis of	Dr. G. Balakrishnan, M.E., Ph.D.,
a) PCB size & material	b) Number of layers	Plincipal
c) Vi as on PCB 17. Which factors cor	d) All of the above atribute to the occurrence of mechanical stress	Indra Ganesan College of Engineerin
a) Resentance	b) Cracked Solder Joints	Valley, Madural Main Pond
Brith a and b	d) None of the above	Manikandam, Trichy-620 012
	B requires minimum soldering on component	
gvoid replacement orier	ited difficulties?	
Single-sided PCB	b) Double-sided PCB	
 ' c) Both a and b 19. What effects can b 	d) None of the above	
	e observed if the separate power and ground plucting surfaces for botter decoupling in PCB	
a) Increase in self-inducta	nce diffedaction in self-inductance	
c) Reduction in self-induc		
e) Stability in self-inducta		
	PCB represents a thin photo-sensitive polym	er by supporting
	single traces or IC pads for etching?	
a) Prepreg	b) Etching	
Cr Photo-resist	d) Solder mask	be assessment
21. Which among the b 'Small Outline Package'?	elow mentioned packages does not belong to a	me category of
a) SO	L) (0)	
c) SOT	b) SOP	
7	bility testing is carried out for the generation	of solder
sampled to immersion of	wire or sheet metal specing in a bath of mol	ten solder?
a) Solder Bath Testir		



e) Solder from Testing

- d) None of the above
- Which among the below stated soldering methods is also renowned as 'High 23. Frequency Resistance Soldering'?
 - Allon Soldering

b) Furnace Soldering

c) Torch Soldering

d) Electrical Soldering Which among the below mentioned approaches belongs to the category of In-circuit 24. Testing?

a) Impedance Testing

b) Component Testing

- c) Apply Signal and check output
- All of the above
- High current circuits are purposely located or placed near the edge of PCB in 25. accordance to the supply lines for_

c) Reduction of path length

b) Isolation of stray current

d) All of the above

Dr. G. Balakri



Department of Electronics and communication Engineering

Academic Year 2018-2019- Odd Semester

STUDENTS PARTICIPATION LIST

¥

VAC PROGRAM-PCB DESIGNING

			YEAN		TE: 2.18	ÐA'I 11.13			VTE: 12.18		TE: 2.18		12.18	NO OF SESSIONS	SIGNATION CRETCH STAINST
	120190	STUDENTS NAME	BRANCH	ŀΝ	ΛN	FN	AN	FN	AN	FN	AN	Fin	٨N	ATTENDED	
	811215106002	Abinethri,J	IV/ECE									-7	-	10	T 1 th
2	311215106004	Anitha,B	IV/ECE										-/	10	13.0,14
	\$11215106007	Balaji,S	TV/ECE				~	1					1	10	Esa hay
-	\$11215106008	BarjanaBarveen.N	IVÆCE	11	1		a	1,		14	1/-,			9	S.Bort
	\$1121 \$106009	Bhagya,D	TIV/ECE					1.	-u					9	N. Baryay
6	811215106010	Dhivyapriya.S	IV/ECE		a	1			1a						Bmul
1	311215136011	PairoseBeguni A	TV/ECE		a	1				+				9	- Dhieya S
	81121 (06012	Parsana,K	T PUARTE		17		1			+				10	Fi Followse
2 (x	213 M 51060 3	Gemathi,M	1.7111		1	19	0			-1-			- /.	9	K. Farwang
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					Dr. G	. Bala	kris	hna	n, M.E	., Ph.D	•				
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S.NO	REG NO	STUDENTS NAME	YEAR/		TE: 12.18		TE: 2.18		ATE: 12.18	DA' 13.1			VTE: 12.18	NO OF SESSIONS	SIGNATURE
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12	811215106016	Jahcerl Inssain, Is	IV/ECE			· ·····								Structure and a regiment of	0 k
	811215106017	JancyRani,K	IV/HCE	-6			a	\square		·/		1	1	9 (That he b
- 	811215106013	Jayasri, A	IV/ECE	-6		1				- (1	2	/	10	Jancy Day 1
15	\$11215106017	Juliet Vanitha.S	IV/ECE					-/			- /	1		10	A
	81121:106020	Kalaiselvi, R	IV/ECE				-	4	a		<u> </u>	1	_/_	9	S. Julio
17	811215106021	Karthick.R	IV/PCF			_a_	a	1		1	/	1	_/	-8	Juliet Va
13	811215106023	Krishnaveni.K	IV/ECE					1		<u>a</u>	a	1	1	Q	da.
19	811215106024	Madhu.M	IV/ECE				a			_/.		1	1-	q	NA
20	811215106025	Malarvizhi.R	IV/ECE					· /	-			1		10	M. Madlu
21	811215106026	Manikandan,S	IV/BCE		a			mlan				1	1	q	R. Malaeviza
12	811215106027	Meera.V	IV/ECE			12-		a	a	1	1	1	1	8	S. Market
23	811215106028	MohamedYasin.M	IV/ECE			-	<u>a</u>	-1	-/-	1	1	1	1	q	
	811215106029	Nandhini,R	IV/ECE		·		1	1.			1	1	1		Minadown
25	811215106030	NasithaBanu.S	IV/ECE						1	1	1	1	1	10	6 1 1
6	811215106032	Prabhu,M	IV/ECE	1			1	1		1	1	1	1		K. Narch
7	811215106033	Priya.K	IV/ECE	· / ···		. /	1	1	/	1	1	1	1	0	S.Nastha
8	811215106034	Priya.M	IV/ECE				1	1	1	/	a	17	1	10	- Roman n.
9	811215106035	Priyadharshini.K						1/	a	17	17				1 tenfor
0	81121510603;	Rateek.M	IV/ECE	1	28	1	1	1	.1.	Z	1	17	17	9	Diforye



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	87.47.14 (A # 8	STUDENTS NAME	BRANCH	FN	ΛN	FN	٨N	FN	AN	FN	٨N	FN	٨N	ATTENDED	STUDENT
31	811215106038	Rajapalikhan, K	IV/ECE	1					_					managering and the comment of the last section and	Mananta - La planagenta in Janua' nalimeterang (ga Ju - Ju).
12	811215106039	Ramya.G	IV/ECE		1		2	1				1	1	10	K. Raplinha
33	811,15106040	Sachin,R	IV/ECE		-		a	1				4		9	Gerando
4	811215106042	Saraswathi, A	IV/ECE	a	a							.l			R. Soelin
.15	811215106043	Saraswathi, R	IV/ECE				-		a	_/		14		9 (& Saching
-6	811215106044	Shalini,G	IV/ECE										_	10	D/ godist
11	811215106045	Subramani.M	IV/ECE	- the m		a	·		-/			-4		9	J Chil
18	811215106046	Sujil-vangelin.Jasmine.S	IV/ECE				/	/			-/			lo	M. Qub:
10 T	811215106018	Surya,N	IV/ECE				1	-/-							Syn
10 j	311215106049	Vijay.G	IVIECE	1			1	6			1			10	N. Surya
1	311215106050	Sathya.R	TV/ECE				1				a			9	Ca. Vipi
12 Ì	811216106001	Abarna l'	III/ECE			. L.	1	0	<u>a</u>	1		1		8 <	PCR
13	811216106002	AmsavalliS	HI/ECE		a						-1	1	/	q	T. Aban
Li 📔	811216106003	AnishyaS	III/ECE					1			1	1	1	10	S. Ansavelji
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1.	811216106005	AshefaN	UI/ECE					\square			1	1	/	10	lo d O'
2	#11216106006	Dhanalat shou'l	III/ECE	/_	-/	- (1	1	1	1	1	1	- 10	genterine .
8 -	811216106008	FeminaBegum A	a submy day any same lands a				_/	/	/	/	a	1	1	q	Ashapa !
9	£11216106009	Gayathrit	нис.	···	4	a	a	1	/	./	-1.	1/		8	Halgam



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S.NO	REG NO	STUDENTS NAME	BRANCH	FN	٨N	FN	٨N	FN	٨N	FN	٨N	FN	ΛN	ATTENDED	STUDENT
50	811216106010	Joysefshiba J	HI/ECE	1		1	a	1	1	1	1	1	1	9	Harder
51	811216106011	Keerthana P	HI/ECE	1	1	1		1	1	1	1	1	1	10	Deterding
52	811216106012	Keerthana S	HI/ECE	1	1	1	1	1	1	1	1	1	1	10	Keething
53	811216106013	Keerthika D	III/ECE	1	1	1	1	1	CL	1	1	1	1		8. Mersthan
54	811216106014	Lathasri S	III/ ECE	1	1	1	1	1		a	á	1	1	8	S (athin)
55	811216106015	Menaka R	III/ ECE	1	1	a	a	1	1	1	1	1	1	8	0
56	311216106016	Mithra P	III/ ECE	1	a	1		1		1	17	17		q	P. Minaka
57	\$11216106017	Mohan Raj S	III/ ECE	1	1			1	17	- 7	1	17			
59	\$11216106018	Nilavar Nisha F	HI/ ECE	1			1	1	a					10	- Momenthey.
59	ST1216106019	Pavithra P	III/ ECE	/				a	a		17				-NN-
60	811216106020	Pavith:a V	HI/ ECE		a			17						&	- Kair po
61	\$11216106021	Prabhu A	TH/ ECE	··· ····		17		-							+anither)
62	811217166001	Aishwariya S	II/ECE							(/	10	A. Pary-1-
63	811217106002	Ancesha A	HÆCE					1	1	1	1	/	11	10	Aishworitals
64	811217106003	Deepika B	C T I W CONTRACTOR - I MANUAL AND AND					_/	1	/	1	1	1	10	ES duping I
65	811217196004		H/ECE		1/			1	1		1	11	1	10	R Dail
	811217106005	Durga D	H/ECE		/			1			1 a		1	9	D. DLagay
67	811217105005	Gangadevi M	H/ECE	1.	1	/	1	0	U/		17		1 /	q	Meangode
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68	811217106009	KarthieF K	H/ECE	11	1	17	1	1	·	in				a	Karthick K

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5.NO	REG NO	STUDENTS NAME	YEAR/	5 m	TE: 12.18	() () () () () () () () () ()	TE: 2.18	1	ATE: .12.18		TE: 2.18		ATE: 12.18	NO OF SESSIONS	SIGNATURE
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69	811217106010	Kosiananth R	II/ECE		ļ			·}		1				1	
70	811217106011	Lakshmi M	H/ECE		1-		<u>a</u>	1	1		1	1	/	9	31
71	811217106012	Manikandan M	II/ECE		. C	/	1	1		1	11	1		10	* Kny-
72	\$11217106013	Mekala Devi S	II/ECE		<u>a</u>	1	1	1			7	1		<u>d</u>	marking.
	al ada Dingkangkepi anya naj membarahingkanjanan didangan -	way and a particular to be a particular stage that an algorith			1	1	1	a	a	1	1	1			M. Many

VAC (oordinator

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

HOD/ECT



Department of Electronics and communication Engineering

Academic Year 2018-2019- Odd Semester

VALUE ADDED COURSE ASSESMENT SHEET

PCB DESIGNING

S.NO	REG NO	STUDENTS NAME	YEAR/	Atten	dance Details	VAC-	MCQ TEST	OVERALL
- Samper		STUDENTS NAME	BRANCH	No. of Session	Attendance Mark(100)	No of Correct	MCQ Mark(100)	MARK(100) (50% of A + 50% of B)
1	811215106002	Abinethri, J	IV/ECE	Attended	(A)	Answers	(B)	2070 OL D)
2	811215106004	persistence in the second state in the second state in the second state in the second state is a second state in the second stat	Address States or Page 5 Page	30	100	19	76	84
2		Anitha.B	IV/ECE	30	100		······································	04
3	811215106007	Balaji.S	IV/ECE	27	and an and a second	20	80	90
4	811215106008	BarjanaBarveen.N	and any prod because		90	20	80	86
5	811215106009	and a fear of the second second second development of the second preservation between second	IV/ECE	27	90	22	88	21 () 10
	relation	Bhagya.D	IV/ECE	27	90	annan an ann an an ann an ann an an an a	Anthen the same with subjects	94
6	811215106010	Dhivyapriya.S	IV/ECE			19	76	84
7	811215106011		2. 5.000 mg & 100	27	90	19	76	88
8	Approximation of a polarity processing and a second second	FairoseBegum.A	IV/ECE	30	100	19	And	2694 JAP Saminday papar
	811215106012	Farsana.K	IV/ECE	27	90	19	76	88
9	811215106013	Gomathi.M	IV/ECE	Middletter and a second spectra		20	80	86
10	811215106014	manue development dats and an an		27	90	20	80	90
	the same manufacture of	HabeebBanu.M	IV/ECE	27	90	-1470- berrade	All the Color and the second second	70
11	811215106015	Hemalatha.K	IV/ECE	20		19	76	88
and a subserve of the second		and days - the second and a second second days of the second days of the second data and the second s		30	100	22	88	94

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



S.NO	DEGNO		B785 A WAL		lance Details	VAC-N	ACQ TEST	OVERALI
**	REG NO	STUDENTS NAME	YEAR/ BRANCH	No. of Session Attended	Attendance Mark(100)	No of Correct	MCQ Mark(100)	MARK(100 (50% of A -
12	811215106016	JaheerHussain.K	IV/ECE	27	(A) 90	Answers	(B)	50% of B)
13	811215106017	JancyRani.K	IV/ECE	30	100	19	76	84
14	811215106018	Jayasri.A	IV/ECE	30		22	88	94
15	811215106019	Juliet Vanitha.S	IV/ECE	All and a second and	100	22	88	90
16	811215106020	Kalaiselvi.R	IV/ECE	27	90	20	80	86
17	811215106021	Karthick.R	IV/ECE	24	80	19	76	84
18	811215106023	Krishnaveni.K		24	80	19	76	88
19	811215106024	NAL	IV/ECE	27	90	22	88	and the second second
20	811215106025	Madhu.M	IV/ECE	30	100	19	1197 (MARK)	90
21		Malarvizhi,R	IV/ECE	27	90	Ser Market - A dama and the result of the	76	84
the state of the s	811215106026	Manikandan.S	IV/ECE	24	80	19	76	88
22	811215106027	Meena.V	IV/ECE	27	90	20	80	86
23	811215106028	Mohamed Yasin.M	IV/ECE	30	100	19	76	88
24	811215106029	Nandhini.R	IV/ECE	30		19	76	88
25	811215106030	NasithaBanu.S	IV/ECE	**********	100	19	76	84
26	811215106032	Prabhu.M	IV/ECE	30	100	20	80	90
27	811215106033	Priya.K	IV/ECE	30	100	19	76	88
28	811215106034	Priya.M		27	90	19	76	88
29	811215106035		IV/ECE	27	90	20	80	second - Apply Apply
30	811215106037	Priyadharshini.K	IV/ECE	27	90	19	76	90
	011213100037	Rafeek.M	IV/ECE	27	90	19	76	84 88



S.NO	REG NO		YEAR/		lance Details	VAC-1	MCQ TEST	OVERATE
31		STUDENTS NAME	BRANCH	No. of Session Attended	Attendance Mark(100) (A)	No of Correct	MCQ Mark(100)	OVERALI MARK(100 (50% of A -
	811215106038	Rajapalikhan. K	IV/ECE	30	100	Answers	(B)	50% of B)
32	811215106039	Ramya.G	IV/ECE	27		20	80	86
33	811215106040	Sachin.R	IV/ECE	Annan many's remained and the second distances in the second distances of the second distance of the second distan	90	22	88	94
34	811215106042	Saraswathi,A	IV/ECE	24	80	22	88	94
35	811215106043	Saraswathi.R		27	90	22	88	
36	811215106044	Shalini.G	IV/ECE	30	100	20	Harturgala	94
37	811215106045	and a manufacture and a second se	IV/ECE	27	90		80	86
38		Subramani.M	IV/ECE	30	100	19	76	84
	811215106046	SujiEvangelinJasmine.S	IV/ECE	30	100	19	76	88
39	811215106048	Surya.N	IV/ECE	30		22	88	94
40	811215106049	Vijay.G	IV/ECE	trans	100	20	80	90
41	811215106050	Sathya.R	IV/ECE	27	90	19	76	88
42	811216106001	AbarnaT	III/ECE	24	80	19	76	88
43	811216106002	AmsavalliS	views manuage.	27	90	22	88	N. Northforman Antipper
44	811216106003	AnushyaS	III/ECE	30	100	22	88	94
45	811216106004	Arockia NivethaS	III/ECE	27	90	19	76	94
46	811216106005	AshefaN	III/ECE	30	100	19	76	88
47	811216106006	DhanalakshmiT	III/ECE	30	100	19		84
48	811216106008		III/ECE	27	90	20	76	88
49	811216106009	FeminaBegum A	III/ECE	24	80	Andrew Contraction of	80	90
	011210100009	GayathriJ	III/ECE	24	80	19	76	84
						19	76	88



Approved by AICTE, NewDelhi & Affiliated to Anna University, Chennai

S.NO	REG NO		YEAR/		ance Details	VAC-I	MCQ TEST	OVERALL
50	811216106010	STUDENTS NAME	BRANCH	No. of Session Attended	Attendance Mark(100) (A)	No of Correct	MCQ Mark(100)	MARK(100) (50% of A +
		Joysefshiba J	III/ECE	27	90	Answers	<u>(B)</u>	50% of B)
51	811216106011	Keerthana P	III/ECE			22	88	94
52	811216106012	Keerthana S	III/ECE	30	100	20	80	90
53	811216106013	Keerthika D		30	100	20	80	90
54	811216106014	Lathasri S	III/ECE	27	90	22	88	
55	a ber		III/ ECE	24	80		feleneticseen harvaturentiki - yaanid mutaantaa,	94
	811216106015	Menaka R	III/ ECE	24	80	20	80	86
56	811216106016	Mithra P	III/ ECE	27		20	88	94
57	811216106017	Mohan Raj S	III/ ECE		90	20	80	90
58	811216106018	Nilavar Nisha F	III/ ECE	30	100	19	76	84
59	811216106019	Pavithra P	III/ ECE	27	90	20	80	90
60	a heather	and the second s		24	80	20	80	released at the second of the second se
61	811216106020	Pavithra V	III/ ECE	27	90	19	and alteration and an and a second and a second and a second as	90
62	811216106021 811217106001	Prabhu A	III/ ECE	30	100	nationalistan isla managera nya misia	76	84
	1.	Aishwariya S	II/ECE	30	100	19	76	84
63	811217106002	Aneesha A	II/ECE	30	Anter State of State State of State	19	76	88
64	811217106003	Deepika B	II/ECE	ter sourcepter oppleases through the	100	19	76	84
65	811217106004	Durga D	II/ECE	30	100	20	80	90
66	811217106005	Gangadevi M		27	90	19	76	
67	811217106006	Janan iC	II/ECE	27	90	19		88
68	811217106009	and the second se	II/ECE	27	90		76	84
00	01121/100009	Karthick K	II/ECE	27	90	22	88	94
			b./		70	19	76	88

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	STUDENTS NAME	YEAR/ BRANCH	Attendance Details		VAC-MCQ TEST		
				No. of Session Attended	Attendance Mark(100)	No of Correct	MCQ Mark(100)	OVERALL MARK(100) (50% of A +
69	811217106010	Kosiananth R	IL/ECE	Auchded	(A)	Answers	(B)	50% of B)
70	811217106011	Lakshmi M	And and A second second second	41	90	20	80	1 Goan 40
71		the state of the s	II/ECE	30	100		00	90
71	811217106012	Manikandan M	II/ECE	00		19	76	84
72	811217106013	Mekala Devi S	research and the second second second	27	90	19	76	84
		IVICAAIA DEVI S	II/ECE	24	80		70	
		and a second	Locale Street and Street Areas Street	, 	00	20	80	86

VAC Coordinator

HOD/F







This is to certify that **Ms. MEKALA DEVI.S**, II Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Taiy

Galwin Technology Mr.K.C.Tamil Vendhan Chief Executive Officer.

Principal IGCE





This is to certify that **Ms.ANEESHA A**, II Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year2018-2019.

Taiy

Galwin Technology Mr.K.C.Tamil Vendhan Chief Executive Officer.

Principal IGCE





This is to certify that **Ms.DURGA D**, II Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Taiy

Galwin Technology Mr.K.C.TamilVendhan Chief Executive Officer.

Principal IGCE



This is to certify that **Mr.KOSIANANTH R**, II Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Taiy

Galwin Technology Mr.K.C.Tamil Vendhan Chief Executive Officer.

Principal IGCE







This is to certify that **Ms.JANANI C**, II Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Taiy

Galwin Technology Mr.K.C.Tamil Vendhan Chief Executive Officer.

Principal IGCE



This is to certify that **Ms.DEEPIKA B**, II Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Taiy

Galwin Technology Mr.K.C.Tamil Vendhan 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



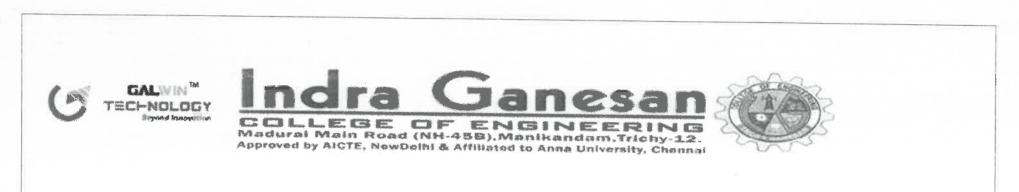


This is to certify that **Mr.SACHIN R**, IV Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Galwin Technology Mr.K.C.Tamil Vendhan 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.ANITHA B**, IV Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Taiy

Galwin Technology Mr.K.C.Tamil Vendhan Chief Executive Officer.

Principal IGCE



This is to certify that **Ms. FARSANA K**, IV Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Tair

Galwin Technology Mr.K.C.Tamil Vendhan 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.KARTHICK R**, IV Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

Taiy

Galwin Technology Mr.K.C.Tamil Vendhan Chief Executive Officer.

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This is to certify that **Mr.SUBRAMANI M**, IV Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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Principal IGCE



This is to certify that **Ms.SATHYA R**, IV Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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This is to certify that **Ms.LATHA SRI S**, III Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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This is to certify that **Ms.MITHRA P**, III Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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This is to certify that **Ms.NILAVAR NISHA F**, III Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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This is to certify that **Ms.KEERTHIKA D**, III Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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This is to certify that **Ms.MENAKA R**, III Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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Principal IGCE



This is to certify that **Mr.PRABHU A**, III Year, ECE has successfully completed the Value Added Course on "**PCB Designing**" organized by Department of Electronics and Communication Engineering in Association with **Galwin Technology** from 10th December 2018 to 14th December 2018 (5 days) during the Academic year 2018-2019.

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