From
Dr.G.Mohan Babu,
Professor and head,
Department of Electrical and Electronics Engineering,
SSM Institute of Engineering and Technology,
Dindigul.

To
The Principal,
SSM Institute of Engineering and technology,
Dindigul.

Respected sir,

Sub: Requesting Approval of conducting **Technological Teaching** for II year and III year EEE Students –Reg

The **Department of EEE** has planned to conduct technological teaching for II year and III year EEE students on **"TRAINING ON PRODUCT DESIGN AND MANUFACTURING** " which is scheduled to be conducted on the month of December 2022.in this regard , I request your permission to conduct this training on the month. The quotation details, syllabus and training schedule are attached with this letter, kindly do the needful sir.

Name of the technological Training	**Name of the Company**	**Total Number of students**	**No of hours**	**Date**	**Amount**	**Coordinator /Faculty in charges**
Training On Product Design And Manufacturing	SUNSHIV Electronic solutions	76	48	10.10.22 to 15.10.22	1,48,200	Mr.D.Manoj AP/EEE Mr.P.Siva Subramanian AP/EEE

Resource person details:

Mr.S. Sundramoorthy
CEO
Sunshiv Electronic Solution

NOTE: Training cost will be settled to the company two days before the end of training.

Thanking you,

Yours faithfully

(Dr.G.Mohan Babu)

SSM Institute of Engineering and Technology, Dindigul

Dindigul – Palani Highway, Dindigul – 624 002

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

Department of Electrical and Electronics Engineering

Organizes

Six days Technology Training on

"Product Design and Manufacturing"

From: 10.10.2022 to 15.10.2022

Resource Person

Mr.S.Sundaramoorthy
CEO, Sunshine Electronics Solutions,
Coimbatore.

RegistrationLink: https://forms.gle/NVXNHCyMFcrvoigd8

(For III and II -year students of EEE)

Co-ordinators	HoD/EEE	Principal
Mr.D.Manoj,A.P/EEE Mr.P.Siva Subramanian, A.P/EEE	Dr.G.Mohanbabu	Dr.D.Senthil Kumaran

ALL ARE INVITED

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)
Dindigul-Palani Highway, Dindigul-624002

CIRCULAR

7/10/2022

This is to inform that six days training program on **PRODUCT DESIGN AND MANUFACTURING** is going to conduct for II year EEE &III YEAR students from 10.10.2022 to 15.10.2022, by Sunshiv electronics Dindigul. All the students are informed to attend and enrich your knowledge.

Faculty In-charge

HOD/EEE

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY

Sindalagundu post, Dindigul-624002, Tamilnadu.Ph:0451-2448800

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

TECHNOLOGY TRAINING ON "PRODUCT DESIGN AND MANUFACTURING"

ATTENDANCE SHEET

S. No.	Reg.no.	Student Name	10.10.22		11.10.22		12.10.22		13.10.22		14.10.22		15.10.22	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
1	922121105001	ABIRAMI G												
2	922121105002	ADAM CAMIRAN R												
3	922121105003	AISHWARYA M.P												
4	922121105004	ARCHANA DEVI B												
5	922121105005	ARUN KUMAR S												
6	922121105006	BALAMURUGAN M												
7	922121105007	BALA SUBRAMANIYAN R												
8	922121105008	BHUVANESWARI G												
9	922121105009	CATHRIN NISHA M												
10	922121105010	CELIN JAYAMARY A												
11	922121105011	DEENA DHAYALAN P A												
12	922121105012	DHANUSH KUMAR J												
13	922121105013	DIVYA J												
14	922121105014	DOMINIC SCAPLARRAJ A												
15	922121105015	EZHUMALAI NAGA VISHNU S												
16	922121105016	GOPI J												

S. No.	Reg.no.	Student Name	10/10/22 ~~12.05.22~~		11/10/22 ~~13.05.22~~		12/10/22 ~~16.05.22~~		13/10/22 ~~17.05.22~~		14/10/22 ~~18.05.22~~		15/10/22 ~~19.05.22~~	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
17	922121105017	HARIHARAN T	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran	T. Hari haran
18	922121105018	JAYASRI S	S. Raj.	S. Raj.	S. Raj.	S. Raj.	S. Raj.	S. Raj.	S. Raj.	S. Raj.	AB	S. Raj.	S. Raj.	S. Raj.
19	922121105020	KALEESWARAN M	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal	M. Kal
20	922121105021	KAMALEE A	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky	A. Ky
21	922121105022	KAMILA SAI K	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila	K. Kamila
22	922121105023	KANYA K	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya	K. Kanya
23	922121105024	KARTHICK RAJ D	←	OD	ABSC		→		Karj	Karj	Karj	Karj	Karj	Karj
24	922121105025	KAVIYA LAKSHMI S	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya	S. Kaviya
25	922121105026	KISHOR N	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor	N. Kishor
26	922121105027	LOKENDRA SOWMIYAN S	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~	~~L. Lokendra~~
27	922121105028	MANIKANDAN S	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik	S. Manik
28	922121105029	MANIVASAGAN B	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani	B. Mani
29	922121105030	MANI VEL G	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani	G. Mani
30	922121105031	MANOJKUMAR A	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj	A. Manoj
31	922121105032	MINIPRIYA K	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya	K. Mini priya
32	922121105033	MOHAMMED SIDDIQ A	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd	A. Mohd
33	922121105034	NARMATHA DEVI P	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma	P. Narma
34	922121105035	PONRAJ R	R. P	R. P	R. P	R. P	R. P	R. P	R. P	R. P	R. P	R. P	R. P	R. P

S. No.	Reg.no.	Student Name	10.10.22 12.05.22		11/10/22 11.05.22		12.10.22 10.05.22		13.10.22 17.05.22		14.10.22 18.05.22		15.10.22 19.05.22	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
35	922121105036	PRADISH V S												
36	922121105037	PRIYA DHARSHINI J												
37	922121105038	RAGAVI R												
38	922121105039	RAJESHWARI J												
39	922121105040	RAJKUMAR S	←	AB				→			→		TC	TC
40	922121105041	REETHANA M												
41	922121105042	SANJAY G												
42	922121105043	SANTHIYA M												
43	922121105044	SANTHOSH C												
44	922121105045	SARAN RAHUL G												
45	922121105046	SELVAKUMAR C												
46	922121105047	SHARMILA M												
47	922121105048	SRI SAKTHI J T									AB			
48	922121105049	SRI SUPRAJA S												
49	922121105050	VAISHALI M									AB			
50	922121105051	VANAJA G												
51	922121105052	VEERACHAMY S												
52	LE 1	SALAMON VINCENT RAJ R												
53	LE 2	YUVARAJ T												
54	LE 3	YUGDISH												

R. Ragavi
J. Rajeshwari.
M. Reethana
G. Sanjay
M. Santhiya
C. Sathish
G. Saran Rahul.
C. Selva kumar
M. Sharmila
T. Sri Sakthi
S. Sri Supraja
Vaishali.
G. Vijaya
S. Veerachamy.
R. Salomon Vincent Raj
T. Yuvaraj (Received)
M. Yugdish (Received)

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY

Sindalagundu post, Dindigul-624002, Tamilnadu.Ph:0451-2448800

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

TECHNOLOGY TRAINING ON "PRODUCT DESIGN AND MANUFACTURING"

ATTENDANCE SHEET

S. No.	Reg.no.	Student Name	10.10.22		11.10.22		12.10.22		13.10.22		14.10.22		15.10.22	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
1	922120105001	M.Akashkumar												
2	922120105002	S.A.Amanulla												
3	922120105003	P.M.Balaji												
4	922120105005	U.Dineshkumar												
5	922120105006	T.Geethanjali												
6	922120105007	P.Jothiselvam												
7	922120105008	N.Karthikeyan												
8	922120105009	M.Mariaraj												
9	922120105010	S.Mohamed Aburar												
10	922120105011	S.Mohamed Kasim												
11	922120105012	M.Monesh												
12	922120105013	S.Preethi												
13	922120105014	M. Preethiviraj												
14	922120105015	T.Rohith												
15	922120105016	S.Sadham hussain												
16	922120105017	S.Sangarapandi												

S. No.	Reg.no.	Student Name	~~12.05.22~~ 10/10/22		~~13.05.22~~ 11/10/22		~~16.05.22~~ 12/10/22		~~17.05.22~~ 13/10/22		~~18.05.22~~ 14/10/22		~~19.05.22~~ 15/10/22	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
17	922120105018	R.Shanmugavel												
18	922120105019	M.Suriya prakash	AB	AB										
19	922120105020	V.Tamilselvan												
20	922120105021	H. Thirsath daniel												
21	922120105301	R.Sharan kailash												
22	922120105302	M.Hariprasath												

Faculty Incharge

Trainer

HoD/EEE

Your Technical Friend
SUNSHIV
Electronic Solutions
Since 1994
ELECTRONIC CORE INDUSTRY

PCB Designing & Manufacturing
Industrial Automation Products
Electronics / Embedded / PLC Training
In-plant / Internship Training
3D Modeling & Printing

29-09-2022

To,
The HOD -EEE
SSM college of Engineering & Technology
Dindigul.

Dear sir,
Greetings from SUNSHIV ELECTRONIC SOLUTIONS, Coimbatore.
Thank you for choosing our industry for 6 days practical industrial training to our students.
I assure all our students will become as industry ready engineers by our exclusive hands-on practical training which are badly expected by Core & IT industries.

Topics for our 6 days training:

1. PRODUCT DESIGN AND MANUFACTURING :

***Live Demo of electrical and electronics components(value finding and working principle)**
***Computer Aided Drafting (Practical Training)**
***Circuit creation for industrial applications**
***Circuit creation simulation softwares**
***PCB Designing(single and Multi layer PCB)**
*** Trouble shooting of Products, Machines & Instruments**
***Product Manufacturing (2 products/ student) (All soldering tools , pcb , components will be arranged by us) - TWO Take away products**

2. Industrial EMBEDDED PROGRAMMING USING PIC MICRO CONTROLLER :

*** C keywords with applications**
*** PIC IC architecture and PIN configuration**
*** SENSORS - Digital & Analog**
*** Circuit creation for micro controller products**
*** I/O PORTS (ROBOTIC) Programming**
*** TIMER programming**
*** ADC (Analog sensors interfacing)**
*** Programming 7 seg. Display & sensors interfacing**
*** MPLAB, REAL PIC SIMULATOR & SIMULIDE software training**
*** IOT(Internet Of Things) –Data storing in CLOUD.**
*** Programming for industrial applications (50 products and more)**

Address: 245,Chinnasamy naidu road,Opp to Ayyappan temple, New Siddhapudur, Gandhipuram,Coimbatore-641044. Phone – 0422 4980499. Cell : 98422 02351,97509 14445.
Email : sunshivpcb@gmail.com Web : sunshivelectronics.com

Training schedule for our 6 days industrial training

1. PRODUCT DESIGN AND MANUFACTURING :

Day1
Forenoon :
Live Demo, value finding, identification, working principle of electronic components and circuits & Drafting fundamentals
@ conference hall

Afternoon :
Hands on – Computer Aided Designing & Drafting
@ computer lab

Day2 :
Forenoon
INDUSTRIAL PCB DESIGNING – single & Multilayer
@ Conference hall

Afternoon :
PCB DESIGNING (Single & multilayer) – PRACTICAL
@Computer lab

Day 3 :
Forenoon :
Two individual products manufacturing & Testing
@ Electronics lab
(All equipments, soldering iron, stand , lead, pcb & components will be arranged by our industry)

Afternoon :
Circuit Creation for industrial and domestic electronic products &
Trouble shooting of Components, Products & instruments
(All multimeters , components will be arranged by our industry)

2. Industrial EMBEDDED PROGRAMMING USING PIC MICRO CONTROLLER :

Day 4 :
Forenoon
C keywords with applications
PIC IC architecture and PIN configuration
I/O PORTS (ROBOTIC) Programming
- With Source code & hardware explanations

@ Conference hall

Afternoon :
Robotic I/O , MPLAB & REAL PIC SIM programming – PRACTICAL
@ Computer lab (Or conference hall with laptops)

Day 5 :
Forenoon
SENSORS - Digital & Analog
Circuit creation for micro controller products
TIMER programming with live applications & SFRs
7 Seg. Display interfacing programming
SIMULIDE Software training

Afternoon:
Timer Programming & simulation - Practical
@Computer lab (Or conference hall with laptops)

Day 6 :
Forenoon
ADC - Analog sensors interfacing
Programming for Industrial applications (50 products and more)

Afternoon:

Analog sensor Programming & simulation - Practical
How to become an ENTREPRENEUR?
How to get outsourcing orders from Industries on your studying period?
How to get Industry Projects & Internships?
Feedback session
Training certification
@Computer lab (Or conference hall with laptops)

Outcome of our exclusive practical training:

1. Our trainings are purely practical oriented.
2. Participants can create drawings, Circuits, Programs for any industrial applications on their own.
3. All Participants can trouble shoot machines, instruments and PCB kits.
4. Parcipants will meet all the expectations of IT & Core industries.
5. Participants can manufacture their projects by their own at our college premises (No need of project centers)
6. Industrial certification (Training , Internship certificates)
7. Our Industry visit & follow up session after training

Note :
Minimum students batch - 70
Maximum students batch – 140

Fees :
For 6 days training with two individual take away products
Rs 1950 / Participant – for cash payment
(For cheque or bank transfer Taxes will be extra)

Thank you.
Regards
S.SUNDARAMOORTHY, CEO, 9842202351
SUNSHIV ELECTRONIC SOLUTIONS,
COIMBATORE.

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY

Sindalagundu post, Dindigul-624002, Tamilnadu.Ph:0451-2448800

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

TECHNOLOGY TRAINING ON " PRODUCT DESIGN AND MANUFACTURING

MARK SHEET

S. No.	Reg.no.	Student Name	MARK
1	922120105001	M.AKASHKUMAR	12
2	922120105002	S.A.AMANULLA	9
3	922120105003	P.M.BALAJI	17
4	922120105005	U.DINESHKUMAR	15
5	922120105006	T.GEETHANJALI	20
6	922120105007	P.JOTHISELVAM	15
7	922120105008	N.KARTHIKEYAN	19
8	922120105009	M.MARIARAJ	21
9	922120105010	S.MOHAMED ABURAR	12
10	9221120105011	S.MOHAMED KASIM	12
11	922120105012	M.MONESH	10
12	922120105013	S.PREETHI	14
13	922120105014	M. PREETHIVIRAJ	13
14	922120105015	T.ROHITH	17
15	922120105016	S.SADHAM HUSSAIN	8
16	922120105017	S.SANGARAPANDI	19
17	922120105018	R.SHANMUGAVEL	15
18	922120105019	M.SURIYA PRAKASH	09
19	922120105020	V.TAMILSELVAN	20
20	922120105021	H. THIRSATH DANIEL	19
21	922120105301	M.HARIPRASATH	11
22	922120105302	R.SHARAN KAILASH	13

Faculty Incharge

HoD/EEE

PRINCIPAL

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY

Sindalagundu post, Dindigul-624002, Tamilnadu.Ph:0451-2448800

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

TECHNOLOGY TRAINING ON "PRODUCT DESIGN AND MANUFACTURING

MARK SHEET

S. No.	Reg.no.	Student Name	MARK
1	922121105001	ABIRAMI G	15
2	922121105003	AISHWARYA M.P	18
3	922121105004	ARCHANA DEVI B	12
4	922121105005	ARUN KUMAR S	11
5	922121105006	BALAMURUGAN M	10
6	922121105007	BALA SUBRAMANIYAN R	12
7	922121105008	BHUVANESWARI G	13
8	922121105009	CATHRIN NISHA M	15
9	922121105010	CELIN JAYAMARY A	13
10	922112105011	DEENA DHAYALAN P A	08
11	922121105013	DIVYA J	14
12	922121105014	DOMINIC SCAPLARRAJ A	10
13	922121105015	EZHUMALAI NAGA VISHNU S	11
14	922121105016	GOPI J	15
15	922121105017	HARIHARAN T	14
16	922121105018	JAYASRI S	12
17	922121105020	KALEESWARAN M	15
18	9221211050021	KAMALEE A	18
19	922121105022	KAMILA SAI K	20
20	922121105023	KANYA K	19
21	922121105024	KARTHICK RAJ D	17
22	922121105025	KAVIYA LAKSHMI S	14
24	922121105027	LOKENDRA SOWMIYAN S	20
25	922121105028	MANIKANDAN S	22
26	922121105029	MANIVASAGAN B	18
27	922121105030	MANI VEL G	12
28	922121105031	MANOJKUMAR A	18
29	922121105032	MINIPRIYA K	18
30	922121105033	MOHAMMED SIDDIQ A	12
31	922121105034	NARMATHA DEVI P	11
32	922121105035	PONRAJ R	10
33	922121105036	PRADISH V S	13

34	922121105037	PRIYA DHARSHINI J	18
35	922121105038	RAGAVI R	12
36	922121105039	RAJESHWARI J	15
37	922121105041	REETHANA M	12
38	922121105042	SANJAY G	8
39	922121105043	SANTHIYA M	19
40	922121105044	SANTHOSH C	12
41	922121105045	SARAN RAHUL G	20
42	922121105046	SELVAKUMAR C	18
43	922121105047	SHARMILA M	17
44	922121105048	SRI SAKTHI J T	12
45	922121105049	SRI SUPRAJA S	15
46	922121105050	VAISHALI M	16
47	922121105051	VANAJA G	19
48	922121105052	VEERACHAMY S	18
49	922121105301	SALAMON VINCENT RAJ R	16
50	922121105302	YUDISH M	10
51	922121105303	YUVARAJ T	11

Faculty Incharge

HOD/EEE

PRINCIPAL

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002
(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)
Dindigul – Palani Highway, Dindigul 624 002

Department of Electrical and Electronics Engineering

TECHNOLOGY TRAINING PROGRAMME ON PRODUCT DESIGN AND MANUFACTURING

PRODUCT DESIGN AND MANUFACTURING MULTIPLE CHOICE QUESTION

Name of the student:
Year/Sem :
Date:

1. Which phenomenon is not reduced by the circuit paths of lowest impedances especially provided by power and return planes for shielding purposes?
   a) Radiation
   b) Convection
   c) Noise
   d) Crosstalk
2. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for _____
   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 soldering methods is also renowned as 'High Frequency Resistance Soldering'?
   a) Iron Soldering
   b) Furnace Soldering
   c) Torch Soldering
   d) Electrical Soldering
4. 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
5. Which type of solderability testing is carried out for the generation of solder sample due to immersion of wire or sheet metal specimen in a bath of molten solder?
   a) Solder Bath Testing
   b) Meniscus Rise Testing
   c) Solder Iron Testing
   d) None of the above
6. What is/are the necessity/ies to provide 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 a way of cross-talk reduction while designing digital PCBs?

a) Decrease in the distance between conductors
b) Shielding of clock lines with guard strips
c) Reduction in the loop area of circuits
d) Avoid running of parallel traces for longer distances especially for asynchronous signals

8. Which among the below mentioned packages does not belong to the category of 'Small Outline Package'?
a) SO
b) SOP
c) SOT
d) SON

9. Which among the below specified assertions is not a grounding consideration associated with ADC as well as DAC?
a) Analog side to analog ground
b) Digital side to digital ground
c) Use of separate power supply and connection of their ground leads to single point reference
d) Reduction of inductive loop area between power and return traces

10. Which among the below stated devices/equipments are preferred for elimination of ground and supply line noise especially in TTL/CMOS / ECL PCB designing?
a) Coupling capacitor
b) Decoupling capacitor
c) Snubber circuits
d) All of the above

11. Which among the below specified condition is precise in the crosstalk verification mechanism using logic flow in opposite direction with the limit of avoiding dangerous interference in digital PCB designing?
a) Zeven > Zodd
b) Zodd ≥ 0.5 Zeven
c) Zodd ≥ 0.8 Zeven
d) Zodd = Zeven

12. Which terminology of PCB represents a thin photo-sensitive polymer by supporting photographic pattern of single traces or IC pads for etching?
a) Prepreg
b) Etching
c) Photo-resist
d) Solder mask

13. Which problems are about to occur if PCB is not designed properly in a confined manner for digital circuits?
A. Diffraction
B. Refraction
C. Ground & Supply-line Noise
D. Electromagnetic Interference
a) A & B
b) B & C
c) C & D
d) A, B, C, D

14. Which among the following assists in obtaining the desired value of wave impedance in reflection phase while designing digital PCBs?
A. Width of signal lines
B. Distance between signal line and ground line
C. Signal Delays
D. Double Pulsing

15. What are the components of the electric system?

1. Electric joints and cables
2. Batteries and electric wiring
3. Engines and joints
4. thunder and lightning

16. How many components does the control system have?

1. 4
2. 1
3. 2
4. 5

17. The processor belongs to the

1. Sensory system
2. Mechanic system
3. Electric system
4. Control system

18. One of these is NOT a type of robot

1. Medical
2. Industrial
3 Household
4.Apologetic

19. The small mobile robot base used in the Robot Educator. This robot is able to perform some but not all of the tasks in the Robotics Engineering activities

1. Light sensor
2. Lego Mindstorms Education Software
3. Robot
4. Robot Educator Model (REM)

20. A block is the basic unit of programming in the NXT programming Software. Blocks perform their operations in order along the Sequence Beam

1. Touch Sensor
2. Block (programming)
3. Ports
4. Behaviors

21. The primary source of physical motion in the Mindstorms NXT system.

1. Interactive Servo Motor
2. Behaviors
3. Light Sensor
4. Touch Sensor

22.A machine that is able to interact with and respond to its environment. characterized by three central capabilities: the ability to Sense, the ability to Plan, and the ability to Act_

1. Code
2. Taskbot
3. Robots
4. Ports

23.The three characteristic capabilities that define a robot_____

1. Comment
2. Sensor
3. Sense-Plan-Act
4. NXT Brick

24.When working in a group for robotics, students should_____

1. Socialize instead of work and then work alone
2. Stay on task and don't work with your group
3. Work alone and don't socialize with group members
4. stay on task and work with group members appropriately

25.General term for any command or group of commands in a program. In the NXT Programming Software, this is one or more blocks_____

1. Comment
2. Code
3. Ports
4. Robot

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002

(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)

Dindigul – Palani Highway, Dindigul 624 002

Department of Electrical and Electronics Engineering

TECHNOLOGY TRAINING PROGRAMME ON PRODUCT DESIGN AND MANUFACTURING

20

PRODUCT DESIGN AND MANUFACTURING MULTIPLE CHOICE QUESTION

Name of the student: T. Geethanjali
Year/Sem : II IV
Date: 10/10/22

1. Which phenomenon is not reduced by the circuit paths of lowest impedances especially provided by power and return planes for shielding purposes?
   a) Radiation
   b) Convection
   c) Noise
   d) Crosstalk
2. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for _____
   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 soldering methods is also renowned as 'High Frequency Resistance Soldering'?
   a) Iron Soldering
   b) Furnace Soldering
   c) Torch Soldering
   d) Electrical Soldering
4. 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
5. Which type of solderability testing is carried out for the generation of solder sample due to immersion of wire or sheet metal specimen in a bath of molten solder?
   a) Solder Bath Testing
   b) Meniscus Rise Testing
   c) Solder Iron Testing
   d) None of the above
6. What is/are the necessity/ies to provide 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 a way of cross-talk reduction while designing digital PCBs?

a) Decrease in the distance between conductors
b) Shielding of clock lines with guard strips
c) Reduction in the loop area of circuits
d) Avoid running of parallel traces for longer distances especially for asynchronous signals

8. Which among the below mentioned packages does not belong to the category of 'Small Outline Package'?
a) SO
b) SOP
c) SOT
d) SON

9. Which among the below specified assertions is not a grounding consideration associated with ADC as well as DAC?
a) Analog side to analog ground
b) Digital side to digital ground
c) Use of separate power supply and connection of their ground leads to single point reference
d) Reduction of inductive loop area between power and return traces

10. Which among the below stated devices/equipments are preferred for elimination of ground and supply line noise especially in TTL/CMOS / ECL PCB designing?
a) Coupling capacitor
b) Decoupling capacitor
c) Snubber circuits
d) All of the above

11. Which among the below specified condition is precise in the crosstalk verification mechanism using logic flow in opposite direction with the limit of avoiding dangerous interference in digital PCB designing?
a) Zeven > Zodd
b) Zodd ≥ 0.5 Zeven
c) Zodd ≥ 0.8 Zeven
d) Zodd = Zeven

12. Which terminology of PCB represents a thin photo-sensitive polymer by supporting photographic pattern of single traces or IC pads for etching?
a) Prepreg
b) Etching
c) Photo-resist
d) Solder mask

13. Which problems are about to occur if PCB is not designed properly in a confined manner for digital circuits?
A. Diffraction
B. Refraction
C. Ground & Supply-line Noise
D. Electromagnetic Interference
a) A & B
b) B & C
c) C & D
d) A, B, C, D

14. Which among the following assists in obtaining the desired value of wave impedance in reflection phase while designing digital PCBs?
A. Width of signal lines
B. Distance between signal line and ground line
C. Signal Delays
D. Double Pulsing

a) A & B
b) B & C
c) C & D
d) A, B, C, D

15. What should be the resistance of 0.6 mm wide conductor with 15 cm length and 25 µm thickness of standard copper foil? (Assume ρ = 1.7241 x 10-6(at 20° C)
a) 118.2 mΩ
b) 138.2 mΩ
c) 172.4 mΩ
d) 192.4 mΩ

16. The actual cost of PCB can be evaluated on the basis of _____
a) PCB size & material
b) Number of layers
c) Vias on PCB
d) All of the above

17. Which factors contribute to the occurrence of mechanical stress?
a) Resonance
b) Cracked Solder Joints
c) Both a and b
d) None of the above

18. Which type of PCB requires minimum soldering on component side in order to avoid replacement oriented difficulties?
a) Single-sided PCB
b) Double-sided PCB
c) Both a and b
d) None of the above

19. What effects can be observed if the separate power and ground planes are provided with large conducting surfaces for better decoupling in PCB layouts?
a) Increase in self-inductance
b) Reduction in self-inductance
c) Stability in self-inductance
d) None of the above

20. 1. Which memory storage is widely used in PCs and Embedded Systems?
a) EEPROM
b) Flash memory
c) SRAM
d) DRAM

21. 1. Which of these designs considers both the software and hardware during the embedded design?
a. Peripheral Design
b. Platform-Based Codesign
c. Software/Hardware Design
d. Memory Design

22. Which of these can lead to a reduction of the loop overhead thus leading to an increase in the speed?
a. Loop permutation
b. Loop fusion
c. Loop unrolling
d. Loop tiling

23. The Index set L would denote what?
    a. Processor
    b. Task Graph Node Type
    c. Task Graph Node
    d. Hardware Components
24. The main ingredient for the optimization of power is:
    a. Energy Model
    b. Power Model
    c. Watt Model
    d. Power Compiler
25. The first power model was proposed by:
    a. Tiwari
    b. Russell
    c. Jacome
    d. Jacome and Russel

V. Tamilselvan

20

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002
(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)
Dindigul – Palani Highway, Dindigul 624 002

Department of Electrical and Electronics Engineering

TECHNOLOGY TRAINING PROGRAMME ON PRODUCT DESIGN AND MANUFACTURING

PRODUCT DESIGN AND MANUFACTURING MULTIPLE CHOICE QUESTION

Name of the student:
Year/Sem :
Date:

1. Which phenomenon is not reduced by the circuit paths of lowest impedances especially provided by power and return planes for shielding purposes?
   a) Radiation
   b) Convection
   c) Noise
   d) Crosstalk
2. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for _____
   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 soldering methods is also renowned as 'High Frequency Resistance Soldering'?
   a) Iron Soldering
   b) Furnace Soldering
   c) Torch Soldering
   d) Electrical Soldering
4. 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
5. Which type of solderability testing is carried out for the generation of solder sample due to immersion of wire or sheet metal specimen in a bath of molten solder?
   a) Solder Bath Testing
   b) Meniscus Rise Testing
   c) Solder Iron Testing
   d) None of the above
6. What is/are the necessity/ies to provide 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 a way of cross-talk reduction while designing digital PCBs?

a) Decrease in the distance between conductors
b) Shielding of clock lines with guard strips
c) Reduction in the loop area of circuits
d) Avoid running of parallel traces for longer distances especially for asynchronous signals

8. Which among the below mentioned packages does not belong to the category of 'Small Outline Package'?
a) SO
b) SOP
c) SOT
d) SON

9. Which among the below specified assertions is not a grounding consideration associated with ADC as well as DAC?
a) Analog side to analog ground
b) Digital side to digital ground
c) Use of separate power supply and connection of their ground leads to single point reference
d) Reduction of inductive loop area between power and return traces

10. Which among the below stated devices/equipments are preferred for elimination of ground and supply line noise especially in TTL/CMOS / ECL PCB designing?
a) Coupling capacitor
b) Decoupling capacitor
c) Snubber circuits
d) All of the above

11. Which among the below specified condition is precise in the crosstalk verification mechanism using logic flow in opposite direction with the limit of avoiding dangerous interference in digital PCB designing?
a) Zeven > Zodd
b) Zodd ≥ 0.5 Zeven
c) Zodd ≥ 0.8 Zeven
d) Zodd = Zeven

12. Which terminology of PCB represents a thin photo-sensitive polymer by supporting photographic pattern of single traces or IC pads for etching?
a) Prepreg
b) Etching
c) Photo-resist
d) Solder mask

13. Which problems are about to occur if PCB is not designed properly in a confined manner for digital circuits?
A. Diffraction
B. Refraction
C. Ground & Supply-line Noise
D. Electromagnetic Interference
a) A & B
b) B & C
c) C & D
d) A, B, C, D

14. Which among the following assists in obtaining the desired value of wave impedance in reflection phase while designing digital PCBs?
A. Width of signal lines
B. Distance between signal line and ground line
C. Signal Delays
D. Double Pulsing

a) A & B
b) B & C
c) C & D
d) A, B, C, D

15. What should be the resistance of 0.6 mm wide conductor with 15 cm length and 25 μm thickness of standard copper foil? (Assume ρ = 1.7241 x 10-6(at 20° C)
a) 118.2 mΩ
b) 138.2 mΩ
c) 172.4 mΩ
d) 192.4 mΩ

16. The actual cost of PCB can be evaluated on the basis of _____
a) PCB size & material
b) Number of layers
c) Vias on PCB
d) All of the above

17. Which factors contribute to the occurrence of mechanical stress?
a) Resonance
b) Cracked Solder Joints
c) Both a and b
d) None of the above

18. Which type of PCB requires minimum soldering on component side in order to avoid replacement oriented difficulties?
a) Single-sided PCB
b) Double-sided PCB
c) Both a and b
d) None of the above

19. What effects can be observed if the separate power and ground planes are provided with large conducting surfaces for better decoupling in PCB layouts?
a) Increase in self-inductance
b) Reduction in self-inductance
c) Stability in self-inductance
d) None of the above

20. 1. Which memory storage is widely used in PCs and Embedded Systems?
a) EEPROM
b) Flash memory
c) SRAM
d) DRAM

21. 1. Which of these designs considers both the software and hardware during the embedded design?
a. Peripheral Design
b. Platform-Based Codesign
c. Software/Hardware Design
d. Memory Design

22. Which of these can lead to a reduction of the loop overhead thus leading to an increase in the speed?
a. Loop permutation
b. Loop fusion
c. Loop unrolling
d. Loop tiling

23. The Index set L would denote what?
    a. Processor
    b. Task Graph Node Type
    c. Task Graph Node
    d. Hardware Components
24. The main ingredient for the optimization of power is:
    a. Energy Model
    b. Power Model
    c. Watt Model
    d. Power Compiler
25. The first power model was proposed by:
    a. Tiwari
    b. Russell
    c. Jacome
    d. Jacome and Russel

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002
(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)
Dindigul – Palani Highway, Dindigul 624 002

Department of Electrical and Electronics Engineering

TECHNOLOGY TRAINING PROGRAMME ON PRODUCT DESIGN AND MANUFACTURING

15

PRODUCT DESIGN AND MANUFACTURING MULTIPLE CHOICE QUESTION

Name of the student: R. Skanmugavel
Year/Sem : III / V
Date: 15/10/22

1. Which phenomenon is not reduced by the circuit paths of lowest impedances especially provided by power and return planes for shielding purposes?
   a) Radiation
   b) Convection
   c) Noise
   d) Crosstalk

2. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for _____
   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 soldering methods is also renowned as 'High Frequency Resistance Soldering'?
   a) Iron Soldering
   b) Furnace Soldering
   c) Torch Soldering
   d) Electrical Soldering

4. 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

5. Which type of solderability testing is carried out for the generation of solder sample due to immersion of wire or sheet metal specimen in a bath of molten solder?
   a) Solder Bath Testing
   b) Meniscus Rise Testing
   c) Solder Iron Testing
   d) None of the above

6. What is/are the necessity/ies to provide 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 a way of cross-talk reduction while designing digital PCBs?

a) Decrease in the distance between conductors
b) Shielding of clock lines with guard strips
c) Reduction in the loop area of circuits
d) Avoid running of parallel traces for longer distances especially for asynchronous signals

8. Which among the below mentioned packages does not belong to the category of 'Small Outline Package'?
a) SO
b) SOP
c) SOT
d) SON

9. Which among the below specified assertions is not a grounding consideration associated with ADC as well as DAC?
a) Analog side to analog ground
b) Digital side to digital ground
c) Use of separate power supply and connection of their ground leads to single point reference
d) Reduction of inductive loop area between power and return traces

10. Which among the below stated devices/equipments are preferred for elimination of ground and supply line noise especially in TTL/CMOS / ECL PCB designing?
a) Coupling capacitor
b) Decoupling capacitor
c) Snubber circuits
d) All of the above

11. Which among the below specified condition is precise in the crosstalk verification mechanism using logic flow in opposite direction with the limit of avoiding dangerous interference in digital PCB designing?
a) Zeven > Zodd
b) Zodd ≥ 0.5 Zeven
c) Zodd ≥ 0.8 Zeven
d) Zodd = Zeven

12. Which terminology of PCB represents a thin photo-sensitive polymer by supporting photographic pattern of single traces or IC pads for etching?
a) Prepreg
b) Etching
c) Photo-resist
d) Solder mask

13. Which problems are about to occur if PCB is not designed properly in a confined manner for digital circuits?
A. Diffraction
B. Refraction
C. Ground & Supply-line Noise
D. Electromagnetic Interference
a) A & B
b) B & C
c) C & D
d) A, B, C, D

14. Which among the following assists in obtaining the desired value of wave impedance in reflection phase while designing digital PCBs?
A. Width of signal lines
B. Distance between signal line and ground line
C. Signal Delays
D. Double Pulsing

a) A & B
b) B & C
c) C & D
d) A, B, C, D

15. What should be the resistance of 0.6 mm wide conductor with 15 cm length and 25 μm thickness of standard copper foil? (Assume ρ = 1.7241 x 10-6(at 20° C)
a) 118.2 mΩ
b) 138.2 mΩ
c) 172.4 mΩ
d) 192.4 mΩ

16. The actual cost of PCB can be evaluated on the basis of _____.
a) PCB size & material
b) Number of layers
c) Vias on PCB
d) All of the above

17. Which factors contribute to the occurrence of mechanical stress?
a) Resonance
b) Cracked Solder Joints
c) Both a and b
d) None of the above

18. Which type of PCB requires minimum soldering on component side in order to avoid replacement oriented difficulties?
a) Single-sided PCB
b) Double-sided PCB
c) Both a and b
d) None of the above

19. What effects can be observed if the separate power and ground planes are provided with large conducting surfaces for better decoupling in PCB layouts?
a) Increase in self-inductance
b) Reduction in self-inductance
c) Stability in self-inductance
d) None of the above

20. 1. Which memory storage is widely used in PCs and Embedded Systems?
a) EEPROM
b) Flash memory
c) SRAM
d) DRAM

21. 1. Which of these designs considers both the software and hardware during the embedded design?
a. Peripheral Design
b. Platform-Based Codesign
c. Software/Hardware Design
d. Memory Design

22. Which of these can lead to a reduction of the loop overhead thus leading to an increase in the speed?
a. Loop permutation
b. Loop fusion
c. Loop unrolling
d. Loop tiling

23. The Index set L would denote what?
    a. Processor
    b. Task Graph Node Type
    c. Task Graph Node
    d. Hardware Components

24. The main ingredient for the optimization of power is:
    a. Energy Model
    b. Power Model
    c. Watt Model
    d. Power Compiler

25. The first power model was proposed by:
    a. Tiwari
    b. Russell
    c. Jacome
    d. Jacome and Russel

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002

(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)

Dindigul – Palani Highway, Dindigul 624 002

Department of Electrical and Electronics Engineering

TECHNOLOGY TRAINING PROGRAMME ON PRODUCT DESIGN AND MANUFACTURING

PRODUCT DESIGN AND MANUFACTURING MULTIPLE CHOICE QUESTION

10

Name of the student: M. Monesh
Year/Sem : III / V
Date: 15/10/22

1. Which phenomenon is not reduced by the circuit paths of lowest impedances especially provided by power and return planes for shielding purposes?
   a) Radiation
   b) Convection
   c) Noise
   d) Crosstalk

2. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for _____
   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 soldering methods is also renowned as 'High Frequency Resistance Soldering'?
   a) Iron Soldering
   b) Furnace Soldering
   c) Torch Soldering
   d) Electrical Soldering

4. 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

5. Which type of solderability testing is carried out for the generation of solder sample due to immersion of wire or sheet metal specimen in a bath of molten solder?
   a) Solder Bath Testing
   b) Meniscus Rise Testing
   c) Solder Iron Testing
   d) None of the above

6. What is/are the necessity/ies to provide 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 a way of cross-talk reduction while designing digital PCBs?

a) Decrease in the distance between conductors
b) Shielding of clock lines with guard strips
c) Reduction in the loop area of circuits
d) Avoid running of parallel traces for longer distances especially for asynchronous signals

8. Which among the below mentioned packages does not belong to the category of 'Small Outline Package'?
a) SO
b) SOP
c) SOT
d) SON

9. Which among the below specified assertions is not a grounding consideration associated with ADC as well as DAC?
a) Analog side to analog ground
b) Digital side to digital ground
c) Use of separate power supply and connection of their ground leads to single point reference
d) Reduction of inductive loop area between power and return traces

10. Which among the below stated devices/equipments are preferred for elimination of ground and supply line noise especially in TTL/CMOS / ECL PCB designing?
a) Coupling capacitor
b) Decoupling capacitor
c) Snubber circuits
d) All of the above

11. Which among the below specified condition is precise in the crosstalk verification mechanism using logic flow in opposite direction with the limit of avoiding dangerous interference in digital PCB designing?
a) Zeven > Zodd
b) Zodd ≥ 0.5 Zeven
c) Zodd ≥ 0.8 Zeven
d) Zodd = Zeven

12. Which terminology of PCB represents a thin photo-sensitive polymer by supporting photographic pattern of single traces or IC pads for etching?
a) Prepreg
b) Etching
c) Photo-resist
d) Solder mask

13. Which problems are about to occur if PCB is not designed properly in a confined manner for digital circuits?
A. Diffraction
B. Refraction
C. Ground & Supply-line Noise
D. Electromagnetic Interference
a) A & B
b) B & C
c) C & D
d) A, B, C, D

14. Which among the following assists in obtaining the desired value of wave impedance in reflection phase while designing digital PCBs?
A. Width of signal lines
B. Distance between signal line and ground line
C. Signal Delays
D. Double Pulsing

a) A & B
b) B & C
c) C & D
d) A, B, C, D

15. What should be the resistance of 0.6 mm wide conductor with 15 cm length and 25 μm thickness of standard copper foil? (Assume ρ = 1.7241 x 10-6(at 20° C)
a) 118.2 mΩ
b) 138.2 mΩ
c) 172.4 mΩ
d) 192.4 mΩ

16. The actual cost of PCB can be evaluated on the basis of _____
a) PCB size & material
b) Number of layers
c) Vias on PCB
d) All of the above

17. Which factors contribute to the occurrence of mechanical stress?
a) Resonance
b) Cracked Solder Joints
c) Both a and b
d) None of the above

18. Which type of PCB requires minimum soldering on component side in order to avoid replacement oriented difficulties?
a) Single-sided PCB
b) Double-sided PCB
c) Both a and b
d) None of the above

19. What effects can be observed if the separate power and ground planes are provided with large conducting surfaces for better decoupling in PCB layouts?
a) Increase in self-inductance
b) Reduction in self-inductance
c) Stability in self-inductance
d) None of the above

20. 1. Which memory storage is widely used in PCs and Embedded Systems?
a) EEPROM
b) Flash memory
c) SRAM
d) DRAM

21. 1. Which of these designs considers both the software and hardware during the embedded design?
a. Peripheral Design
b. Platform-Based Codesign
c. Software/Hardware Design
d. Memory Design

22. Which of these can lead to a reduction of the loop overhead thus leading to an increase in the speed?
a. Loop permutation
b. Loop fusion
c. Loop unrolling
d. Loop tiling

23. The Index set L would denote what?
    a. Processor
    b. Task Graph Node Type
    c. Task Graph Node
    d. Hardware Components
24. The main ingredient for the optimization of power is:
    a. Energy Model
    b. Power Model
    c. Watt Model
    d. Power Compiler
25. The first power model was proposed by:
    a. Tiwari
    b. Russell
    c. Jacome
    d. Jacome and Russel

M. Porthviraj

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002
(Approved by AICTE, New Delhi / Affiliated to Anna University, Chennai / Accredited by NAAC)
Dindigul – Palani Highway, Dindigul 624 002

Department of Electrical and Electronics Engineering

TECHNOLOGY TRAINING PROGRAMME ON PRODUCT DESIGN AND MANUFACTURING

13

PRODUCT DESIGN AND MANUFACTURING MULTIPLE CHOICE QUESTION

Name of the student:
Year/Sem :
Date:

1. Which phenomenon is not reduced by the circuit paths of lowest impedances especially provided by power and return planes for shielding purposes?
   a) Radiation
   b) Convection
   c) Noise
   d) Crosstalk
2. High current circuits are purposely located or placed near the edge of PCB in accordance to the supply lines for _____
   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 soldering methods is also renowned as 'High Frequency Resistance Soldering'?
   a) Iron Soldering
   b) Furnace Soldering
   c) Torch Soldering
   d) Electrical Soldering
4. 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
5. Which type of solderability testing is carried out for the generation of solder sample due to immersion of wire or sheet metal specimen in a bath of molten solder?
   a) Solder Bath Testing
   b) Meniscus Rise Testing
   c) Solder Iron Testing
   d) None of the above
6. What is/are the necessity/ies to provide 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 a way of cross-talk reduction while designing digital PCBs?

a) Decrease in the distance between conductors
b) Shielding of clock lines with guard strips
c) Reduction in the loop area of circuits
d) Avoid running of parallel traces for longer distances especially for asynchronous signals

8. Which among the below mentioned packages does not belong to the category of 'Small Outline Package'?
a) SO
b) SOP
c) SOT
d) SON

9. Which among the below specified assertions is not a grounding consideration associated with ADC as well as DAC?
a) Analog side to analog ground
b) Digital side to digital ground
c) Use of separate power supply and connection of their ground leads to single point reference
d) Reduction of inductive loop area between power and return traces

10. Which among the below stated devices/equipments are preferred for elimination of ground and supply line noise especially in TTL/CMOS / ECL PCB designing?
a) Coupling capacitor
b) Decoupling capacitor
c) Snubber circuits
d) All of the above

11. Which among the below specified condition is precise in the crosstalk verification mechanism using logic flow in opposite direction with the limit of avoiding dangerous interference in digital PCB designing?
a) Zeven > Zodd
b) Zodd ≥ 0.5 Zeven
c) Zodd ≥ 0.8 Zeven
d) Zodd = Zeven

12. Which terminology of PCB represents a thin photo-sensitive polymer by supporting photographic pattern of single traces or IC pads for etching?
a) Prepreg
b) Etching
c) Photo-resist
d) Solder mask

13. Which problems are about to occur if PCB is not designed properly in a confined manner for digital circuits?
A. Diffraction
B. Refraction
C. Ground & Supply-line Noise
D. Electromagnetic Interference
a) A & B
b) B & C
c) C & D
d) A, B, C, D

14. Which among the following assists in obtaining the desired value of wave impedance in reflection phase while designing digital PCBs?
A. Width of signal lines
B. Distance between signal line and ground line
C. Signal Delays
D. Double Pulsing

a) A & B
b) B & C
c) C & D
d) A, B, C, D

15. What should be the resistance of 0.6 mm wide conductor with 15 cm length and 25 μm thickness of standard copper foil? (Assume ρ = 1.7241 x 10-6(at 20° C)
a) 118.2 mΩ
b) 138.2 mΩ
c) 172.4 mΩ
d) 192.4 mΩ

16. The actual cost of PCB can be evaluated on the basis of _____
a) PCB size & material
b) Number of layers
c) Vias on PCB
d) All of the above

17. Which factors contribute to the occurrence of mechanical stress?
a) Resonance
b) Cracked Solder Joints
c) Both a and b
d) None of the above

18. Which type of PCB requires minimum soldering on component side in order to avoid replacement oriented difficulties?
a) Single-sided PCB
b) Double-sided PCB
c) Both a and b
d) None of the above

19. What effects can be observed if the separate power and ground planes are provided with large conducting surfaces for better decoupling in PCB layouts?
a) Increase in self-inductance
b) Reduction in self-inductance
c) Stability in self-inductance
d) None of the above

20. 1. Which memory storage is widely used in PCs and Embedded Systems?
a) EEPROM
b) Flash memory
c) SRAM
d) DRAM

21. 1. Which of these designs considers both the software and hardware during the embedded design?
a. Peripheral Design
b. Platform-Based Codesign
c. Software/Hardware Design
d. Memory Design

22. Which of these can lead to a reduction of the loop overhead thus leading to an increase in the speed?
a. Loop permutation
b. Loop fusion
c. Loop unrolling
d. Loop tiling

23. The Index set L would denote what?
    a. Processor
    b. Task Graph Node Type
    c. Task Graph Node
    d. Hardware Components
24. The main ingredient for the optimization of power is:
    a. Energy Model
    b. Power Model
    c. Watt Model
    d. Power Compiler
25. The first power model was proposed by:
    a. Tiwari
    b. Russell
    c. Jacome
    d. Jacome and Russel

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002

Department of Electrical and Electronics Engineering

STUDENT FEEDBACK FORM

Year/Sem: II - 3rd Sem

Date: 15/10/22

Dear Student,

Thank you for your participation in Technology Training on "Product Design and Manufacturing &Industrial Embedded Programming using PIC Microcontroller" conducted from October 10-15, 2022. We would like to hear from you - areas that you find useful and areas that you think we can do better. Your feedback will help us evaluate the effectiveness of this program and allow us to make improvements in future.

S.No	Criteria	Rating				
		Excellent	Verygood	Good	Fair	Satisfactory
1	Course content	✓				
2	Skill development	✓				
3	Motivation	✓				
4	Regularity and punctuality of trainer	✓				
5	Coverage of syllabus	✓				
6	Interaction	✓				
7	Individual attention	✓				
8	Outcome	✓				

Feel free to give QUALITATIVE comments too

.....This....training....helps...us..to...get..to..know...more...about ..Over...the...knowledge...about...electrical...It..is..very...useful... .....

Signature of the student with name

k.kanya [k.kanya]

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002

Department of Electrical and Electronics Engineering

STUDENT FEEDBACK FORM

Year/Sem: III year / 5th sem

Date: 15/10/22

Dear Student,

Thank you for your participation in Technology Training on "Product Design and Manufacturing &Industrial Embedded Programming using PIC Microcontroller" conducted from October 10-15, 2022. We would like to hear from you - areas that you find useful and areas that you think we can do better. Your feedback will help us evaluate the effectiveness of this program and allow us to make improvements in future.

S.No	Criteria	Rating				
		Excellent	Verygood	Good	Fair	Satisfactory
1	Course content	✓				
2	Skill development	✓				
3	Motivation	✓				
4	Regularity and punctuality of trainer	✓				
5	Coverage of syllabus	✓				
6	Interaction	✓				
7	Individual attention	✓				
8	Outcome	✓				

Feel free to give QUALITATIVE comments too

I'm so Lucky to have this sessions, I have learned lots of new things, I'm so proud that I'm going to do something new in my life.

Signature of the student with name

S.preethi

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002

Department of Electrical and Electronics Engineering

STUDENT FEEDBACK FORM

Year/Sem: 2nd, 3rd semester Date: 15/10/22

Dear Student,

Thank you for your participation in Technology Training on "Product Design and Manufacturing &Industrial Embedded Programming using PIC Microcontroller" conducted from October 10-15, 2022. We would like to hear from you - areas that you find useful and areas that you think we can do better. Your feedback will help us evaluate the effectiveness of this program and allow us to make improvements in future.

S.No	Criteria	Rating				
		Excellent	Verygood	Good	Fair	Satisfactory
1	Course content	✓				
2	Skill development	✓				
3	Motivation	✓				
4	Regularity and punctuality of trainer	✓				
5	Coverage of syllabus	✓				
6	Interaction	✓				
7	Individual attention	✓				
8	Outcome	✓				

Feel free to give QUALITATIVE comments too

About this training, it is very useful for our course, and I have learnt lot of new things about circuits, AUTOCAD, EAGLE, PIC microcontroller etc..)

Signature of the student with name

A. KAMALEE

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002

Department of Electrical and Electronics Engineering

STUDENT FEEDBACK FORM

Year/Sem: III / V

Date: 15/10/22

Dear Student,

Thank you for your participation in Technology Training on "Product Design and Manufacturing &Industrial Embedded Programming using PIC Microcontroller" conducted from October 10-15, 2022. We would like to hear from you - areas that you find useful and areas that you think we can do better. Your feedback will help us evaluate the effectiveness of this program and allow us to make improvements in future.

S.No	Criteria	Rating				
		Excellent	Verygood	Good	Fair	Satisfactory
1	Course content	✓				
2	Skill development	✓				
3	Motivation	✓				
4	Regularity and punctuality of trainer	✓				
5	Coverage of syllabus	✓				
6	Interaction	✓				
7	Individual attention	✓				
8	Outcome	✓				

Feel free to give QUALITATIVE comments too

It was very useful and learnt lot of things about PCB and Embedded.

Signature of the student with name GEETHANJALI.T

SSM INSTITUTE OF ENGINEERING AND TECHNOLOGY, DINDIGUL - 624 002

Department of Electrical and Electronics Engineering

STUDENT FEEDBACK FORM

Year/Sem: 2nd year / 3rd Sem

Date: 15/10/22

Dear Student,

Thank you for your participation in Technology Training on "Product Design and Manufacturing &Industrial Embedded Programming using PIC Microcontroller" conducted from October 10-15, 2022. We would like to hear from you - areas that you find useful and areas that you think we can do better. Your feedback will help us evaluate the effectiveness of this program and allow us to make improvements in future.

S.No	Criteria	Rating				
		Excellent	Verygood	Good	Fair	Satisfactory
1	Course content	✓				
2	Skill development	✓				
3	Motivation	✓				
4	Regularity and punctuality of trainer	✓				
5	Coverage of syllabus	✓				
6	Interaction	✓				
7	Individual attention	✓				
8	Outcome	✓				

Feel free to give QUALITATIVE comments too

Your teaching is so useful for us. We learned many things from you sir. Now I am so proud to tell I am a BE. EEE.

P. Narmatha Devi

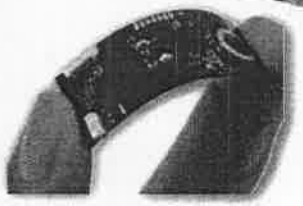
Signature of the student with name

Industrial Products Manufacturing
PCB Designing & Manufacturing
Industrial Electronics Training
PCB Design Hands-on-Training
PIC Industrial Embedded Training

Your Technical Friend

SUNSHIV
Electronic Solutions

Electronic Core Industry Since 1994



245, Chinnasamy Naidu Road, New Siddhapudur,
Gandhipuram, COIMBATORE – 641 044.
Phone : 0422 -4980499, M :97509 14445.

Hands-On-Training Certificate

This is to Certify that Mrs. / Mr. / Ms.....HARIHARAN...T.....II..year..EEE.....

..SSM...Institute...of....Engineering..and...Technology.....Dindigul.....

has successfully completed hands-on-training on

.Industrial...Embedded...C.programming.-IO.ports,..TIMER,.ADC,..SENSOR.&..7.SEGMENT

..display..interfacing,..PCB..designing.+.circuit..creation.&.Trouble.Shooting...

Trainer

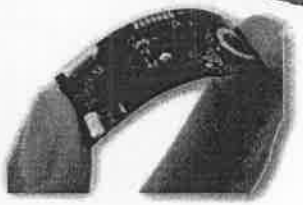
www.sunshivelectronics.com
sunshivpcb@gmail.com

Industrial Products Manufacturing
PCB Designing & Manufacturing
Industrial Electronics Training
PCB Design Hands-on-Training
PIC Industrial Embedded Training

Your Technical Friend

SUNSHIV
Electronic Solutions

Electronic Core Industry Since 1994



245, Chinnasamy Naidu Road, New Siddhapudur,
Gandhipuram, COIMBATORE – 641 044.
Phone : 0422 -4980499, M :97509 14445.

Hands-On-Training Certificate

This is to Certify that ~~Mrs.~~ / Mr. / ~~Ms~~ MANOJ KUMAR A II year EEE

SSM Institute of Engineering and Technology - Dindigul

has successfully completed hands-on-training on

Industrial Embedded C programming, IO PORTS, TIMER, ADC, SENSOR & I
segment display interfacing, PCB Designing Circuit Creation &
Trouble Shooting

Trainer

www.sunshivelectronics.com
sunshivpcb@gmail.com

Your Technical Friend

SUNSHIV

Electronic Solutions

Electronic Core Industry Since 1994

Industrial Products Ma
PCB Designing & Manufa
Industrial Electronics Tra
PCB Design Hands-on-Trai
PIC Industrial Embedded Train

245, Chinnasamy Naidu Road, New Siddhapuo
Gandhipuram, COIMBATORE – 641 044.
Phone : 0422 -4980499, M :97509 14445.

Hands-On-Training Certificate

This is to Certify that Mrs. / Mr. / Ms. D.I.V.Y.A. I. II. year. E.E.E.

S.S.M. Institute of Engineering and Technology, Dindigul

has successfully completed hands-on-training on

Industrial Embedded C Programming – Io PORTS, TIMER, ADC,
SENSOR & 7 segment display interfacing., PCB Designing.,
Cirait creation & Trouble Shooting

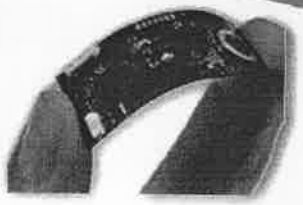
Trainer

www.sunshivelectronics.com
sunshivpcb@gmail.com

Your Technical Friend

SUNSHIV
Electronic Solutions

Electronic Core Industry Since 1994



Industrial Products Manufacturing
PCB Designing & Manufacturing
Industrial Electronics Training
PCB Design Hands-on-Training
PIC Industrial Embedded Training

245, Chinnasamy Naidu Road, New Siddhapudur
Gandhipuram, COIMBATORE – 641 044.
Phone : 0422 -4980499, M :97509 14445.

Hands-On-Training Certificate

This is to Certify that ~~Mrs.~~ / Mr. / ~~Ms~~ .....D.HEENA..DHAYALAN..P.A.....II..year..EEE.....

..CSM...Institute..of.....Engineering..and..Technology...-...Dindigul.....

has successfully completed hands-on-training on

..Industrial....Embedded...C..programming...IO..PORTS.,..TIMER.,..ADC.,..SENSOR.&.

...7..segment..display...interfacing..,..P.C.B..Designing.,..Circuit..creation.&.Trouble.Shootin

www.sunshivelectronics.com
sunshivpcb@gmail.com

Trainer

Industrial Products Manufacturing
PCB Designing & Manufacturing
Industrial Electronics Training
PCB Design Hands-on-Training
PIC Industrial Embedded Training

Your Technical Friend

SUNSHIV
Electronic Solutions

Electronic Core Industry Since 1994

245, Chinnasamy Naidu Road, New Siddhapudur,
Gandhipuram, COIMBATORE – 641 044.
Phone : 0422 -4980499, M :97509 14445.

Hands-On-Training Certificate

This is to Certify that ~~Mrs.~~ / Mr. / ~~Ms~~.....DOMINIC..ALAPLARAI....A.....II..Year..EEE.....

..CSM....Institute..of.....Engineering..and.Technology.....Dindigul.....

has successfully completed hands-on-training on

.Industrial..Embedded..C..programming:-IO.PORTS,.TIMER,.ADC,.SENSOR.&..7.SEGMENT

..display...Interfacing.....

www.sunshivelectronics.com
sunshivpcb@gmail.com

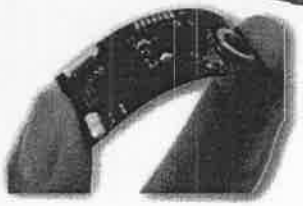
Trainer

Industrial Products Manufacturing
PCB Designing & Manufacturing
Industrial Electronics Training
PCB Design Hands-on-Training
PIC Industrial Embedded Training

Your Technical Friend

SUNSHIV
Electronic Solutions

Electronic Core Industry Since 1994



245, Chinnasamy Naidu Road, New Siddhapudur,
Gandhipuram, COIMBATORE – 641 044.
Phone : 0422 -4980499, M :97509 14445.

Hands-On-Training Certificate

This is to Certify that ~~Mrs.~~ / Mr. / ~~Ms~~ E.THUMALAI NAGA VISHNU S ..... II year EEE ...

... SSM Institute of Engineering and Technology - Dindigul .....

has successfully completed hands-on-training on

Industrial Embedded C programming, IO ports, TIMER, ADC, SENSOR 7 segment display Interfacing, PCB Designing, Circuit Creation & Trouble Shooting .....

Trainer

www.sunshivelectronics.com
sunshivpcb@gmail.com

Industrial Products Manufacturing
PCB Designing & Manufacturing
Industrial Electronics Training
PCB Design Hands-on-Training
PIC Industrial Embedded Training

Your Technical Friend

SUNSHIV
Electronic Solutions

Electronic Core Industry Since 1994

245, Chinnasamy Naidu Road, New Siddhapudur,
Gandhipuram, COIMBATORE – 641 044.
Phone : 0422 -4980499, M :97509 14445.

Hands-On-Training Certificate

This is to Certify that ~~Mrs~~. / Mr. / ~~Ms~~ .....G.O.P.I...J..... II year ...E.E.E.....

...K.S.M...Institute...Of....Engineering.and...Technology....Dindigul.....

has successfully completed hands-on-training on

..Industrial...Embedded...C.programming.-..IO.PORTS.,.TIMER.,.ADC.,.SENSOR.&..7.....

.Segment...display..Interfacing..,...P.C.B..Designing.,.Circuit..Creation.&.Trouble.Shooting

www.sunshivelectronics.com
sunshivpcb@gmail.com

Trainer