KAMARAJ
COLLEGE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
S.P.G.Chidambara Nadar - C.Nagammal Campus
S.P.G.C. Nagar, K.Vellakulam, – 625 701 (Near VIRUDHUNAGAR).

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Academic Year 2024-2025 Even semester

INDUSTRY CERTIFIED

VALUE ADDED COURSE

On

Embedded Systems and PCB Designing

2023-2027 Batch Students

II EEE

Number of Participants: 22

COURSE COORDINATORS

Dr.A. Rajavel , AP / EEE

HOD /EEE

Dr. D. Prince Winston Prof / EEE

Verified

17/2/2025

S. Mukesh

VAC Coordinator

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Academic Year 2024-2025 Even semester

Guidelines for Value Added Courses:

1	**Academic Year**	**:2024-2025**
2	**Regulations**	**:R2021**
3	**Department Name**	**: Electrical and Electronics Engineering**
4	**Name of the Value - Added Course**	: Embedded System and PCB Designing
5	**Number of Credits**	**: 2**
6	**Category**	~~**Theory/Lab**~~**/Hands- on/**~~**Skill based etc.**~~
7	**Name and Details of the Joint – Organization (Industry/NGO etc) if any**	**Manfree Technologies, Coimbatore**
8	**Resource Person Details:**	**Er. S.Saravanan, Research and Development**
9	**VAC Coordinator Details**	**Dr.A. Rajavel AP/EEE**
10	**Course Coordinator Details**	**Dr.A. Rajavel AP/EEE AP/EEE**
11	**Duration (30H Mandatory)**	**48 Hours**
12	**Period(From- To)**	**20-01-2025 to 25-01-2025 (6 Days)**
13	**Venue**	**Power System Simulation Laboratory**

Course Coordinator Dr. A. Rajavel

HOD - EEE Dr. D. Prince Winston

DEAN Academics Dr. S. Suresh Babu

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

Industry Certified Value Added Course

on

EMBEDDED SYSTEM AND PCB DESIGNING

20-01-2025 to 25-01-2025

Enclosures:

S.No.	Checklist	Availability
1	Institutional approval copy	Yes
2	Circular	Yes
3	Syllabus copy with Course Outcomes	Yes
4	BoS Approval	Yes
5	Minutes of Three member Committee	Yes
6	Geo-tagged Photos	Yes
7	Certificate of all participants	Yes
8	Examination Schedule	NA
9	Question and Answers	Yes
10	Attendance Sheet	Yes
11	Evaluated Answer sheet	Yes
12	Test Report	Yes
13	Mark Statement	Yes
14	Grade Sheet	N/A
15	Feedback form	Yes
16	Feedback Analysis and Report	Yes
17	Program Summary / Report	Yes
18	Student's Oral Feedback (Recorded Video)	No
19	VAC –Short Video	Yes
20	Settlement to	Yes

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APPROVAL BOOK

Book No. EEE.

Date 06.01.2025

SL.No. 32

An approval may please be granted for rupees thirty five thousand only (Rs.35,000/-) to conduct six days value added course on "Embedded systems and PCB designing" for II-EEE students of strength 22. The programme will be organised from 20.01.2025 to 25.01.2025. The accommodation & foods to be provided for resource person in our College hostel & mess

Encl: 1. Quotation.
2. Syllabus.

Company: Manfree Technologys, Coimbatore.

Signature of Staff 6/1/25

HoD

PRINCIPAL 10/1/25.

OFFICE USE

1) Account Head : Value Added Course
2) Budget allotted :
3) Amount committed / Spent sofar :
4) Balance available :

Administrative Officer

Secretary

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17-01-2025

CIRCULAR

The department of Electrical and Electronics Engineering is organizing a six days value added course on "Embedded Systems and PCB Designing" for second year Electrical and Electronics Engineering students from 20-01-2025 to 26-01-2025.The details of the course is:

Name of the Course	Organized by	Data and Time	Venue
Embedded Systems and PCB Designing	Manfree Technologies, Coimbatore	20-01-2025 to 26-01-2025 09.10 am to 04.25 pm	Power System Simulation Laboratory, D Block, Fourth Floor

HoD/EEE 17/01/25
Dr. D. Prince winston

Copy to:

1. To be read in II EEE Class room
2. Department faculty members through email id
3. HoD/EEE
4. File

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S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

Department of Electrical and Electronics Engineering

(Accrediated by NBA, New Delhi)

in Association with

manfree™
TECHNOLOGIES

Six Days Value Added Course on "Embedded Systems and PCB Designing"

20.01.2025 to 25.01.2025

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S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near **VIRUDHUNAGAR**).

Department of MTRE and EEE

Cordially invite you all to the Valedictory Function of Value Added Courses

Internet of Things (IoT)

Embedded Systems and PCB Designing

PROGRAM AGENDA

Feedback by Participants

Felicitation

Vote of Thanks

DATE & TIME

25 Jan 2025

3.00 to 4.00 pm

VENUE

IT Conference Hall

manfree™
TECHNOLOGIES

Embedded Systems Syllabus (18 Hrs)

- **C Programming (4 Hrs)**
  1. C Basics, Loops, Functions
  2. Data Types, Pointers, Arrays
  3. Strings, Structure, Unions
  4. Preprocessor, Memory Management
- **Micro controllers (10 Hrs)**
  1. **PIC Micro controllers**
  2. Micro Controller Architecture
  3. Embedded C Programming
  4. LEDs, Seven Segment, LCD, Buttons, Sensors
  5. Relay Switching and Transistor Switching
  6. Timers, Counters, Interrupt and ADC
- **Communication Protocols & IoT (4 Hrs)**
  7. UART, I2C, SPI , CAN Protocols
  8. GSM, Bluetooth Modules
  9. RTC, PWM, Memory Management
  10. Internet of Things (IoT)
  11. Project Development

Requirements:

- ✓ Windows Environment Systems / Laptop for each students
- ✓ 230 V AC Power Supply
- ✓ Projector and Screen, Whiteboard
- ✓ Software Applications - MPLAB IDE, Proteus

manfree™
TECHNOLOGIES

PCB Designing (18 Hrs)

- **Introduction to PCB (1 Hrs)**
  1. Fabrication process and Etching process
  2. Through hole technology, Surface mount technology and Different type of layers.
  3. Different type of IC Package.
- **Basic Electronics (2 Hrs)**
  4. Passive and Active Components
  5. Voltage and Current requirement Calculations
  6. Circuit Designing, Components Selection
  7. Assembling, Soldering Procedures, Testing
  8. Designing Power supply and Relay driver circuits
- **PCB Designing (9 Hrs)**
  9. Components arrangement in PCB and Introduction to KICAD software.
  10. Draw the different type of circuit in schematics.
  11. Hands on work with schematics.
  12. New part creation and building multiple page schematics.
  13. Introduction To Layout and Preparing The Design For Layout
  14. Introduction to auto routing. Introduction to manual routing and Hands on work with layout.
  15. Assigning Specific Text to Design and Hands on work with layout.
  16. Introduction to top layer and Preparing the Design For Layout
  17. Hands on work with top and bottom layer in layout.
  18. Printing PCB Board
- **Soldering & Testing (6 Hrs)**
  19. Components arrangement and soldering.
  20. Test the PCB board.

Requirements:

- ✓ Windows Environment Systems / Laptop for each students
- ✓ 230 V AC Power Supply
- ✓ Projector and Screen, Whiteboard
- ✓ Software Applications - KiCAD PCB Software

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Department of Electrical and Electronics Engineering

Title of the Program : Value Added Course on "Embedded system and PCB Designing"

Date: 20.01.2025 to 25.01.2025 (6Days)

Participants : II year (2023 – 2027 Batch)
Academic Year: 2024 – 2025 EVEN

Conducted by : Manfree Technologies, Coimbatore

Venue : Power System Simulation Lab

Course Outcomes

Students will be able to

Course Outcomes		Details
CO1	:	Design a basic electric circuit and simulate them in KiCAD software tool
CO2	:	Develop a PCB layout for any electrical circuit and print them in a PCB board
CO3	:	Write a simple input and output programs in PIC microcontroller using MPLAB
CO4	:	Develop a simple automation model using PIC Microcontroller
CO5	:	Understand how to use datasheet for PIC Microconteroller

10/1/25

Coordinators

Dr. A. Rajavel

HoD/EEE

Dr. D. Prabu

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
(Accredited by NBA, New Delhi)

MINUTES OF THE BOARD OF STUDIES MEETING

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
(Accredited by NBA, New Delhi)

DATE: 07-12-2024 **TIME: 10.30 am to 12.30 pm**

VENUE: Smart Class (EEE Department)

ATTENDANCE:

S. No.	Name of the Expert	Designation	Capacity	Signature
1.	Dr.K.Selvi	Professor, EEE Thiagarajar College of Engineering, Madurai.	Anna University Nominee	
2.	Dr.S.Senthil Kumar	Associate Professor, EEE National Institute of Technology, Tiruchirappalli.	Academic Council Nominee	
3.	Dr.S.Albert Alexander	Associate Professor, School of Electrical Engineering, Department of Energy and Power Electronics, VIT, Vellore.	Academic Council Nominee	online
4.	Mr.S.Sivakumar	Project Manager, M/S Green Solar Technology, Madurai.	Industrial Expert	
5.	Mrs.S.Swathika	Associate Engineer, Randstad Technology, Caterpillar India Private Limited.	Alumni	online

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

S. No.	Name of the Faculty	Designation	Signature
1.	Dr. D. Prince Winston	Professor & Head / EEE Chairman, Board of Studies	
2.	Dr. B. Gurukarthik Babu	Associate Professor / EEE	
3.	Dr. A. Rajavel	Assistant Professor / EEE	
4.	Dr. G. Sakthivel	Assistant Professor / EEE	
5.	Mrs.J.Uma Maheswari	Assistant Professor / EEE	
6.	Mr. R.Ganesan	Assistant Professor / EEE	
7.	Mr. T. Hari Prasath	Assistant Professor / EEE	

009.01.00 : Welcome address by HoD

- Dr.D.Prince Winston, Professor and Head, Department of Electrical and Electronics Engineering welcomed the BoS Members.

009.02.00 : Department Achievements

- Dr.D.Prince Winston presented the achievements of the Department and highlighted the facilities and infrastructure of the Department.

009.03.00 : Students and Faculty Members Achievements

- Dr.D.Prince Winston presented the various achievements of the Students and Faculty Members.

Item No.	Description	Reported to BoS Members
009.03.01	Pass Percentage of students	The HOD Presented the Pass percentage - year wise and course wise for the academic year 2023-2024 (Even). I EEE – Pass percentage - 56% II EEE - Pass percentage - 91% III EEE - Pass percentage - 90% IV EEE-Pass percentage - 100%

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

009.03.02	Student Internship Completion details	The HOD shared the statistical data of the student internship/ Inplant training details for R2021-80 EEE Students undergone internship during 2023-24.
009.03.03	Value Added Courses offered	The HOD Presented the Value added course "IoT and its Applications" offered by Quantanics Tech Serv Pvt Ltd to II year students for the academic year 2023– 2024.
009.03.04	Department achievements between 8th and 9th BoS	HoD happily shared the department, student and faculty achievements with the BoS members. • 19 students got placement out of 30 students in current final year. • Got Centre of Excellence with Pantech e-learning pvt ltd, Chennai. • Students achievements during April 2024 to December 2024 are summarized as follows.

Students Achievements	Count
Project Presentation	26
Paper Presentation	22
Conferences	20
Certification course	10
Journal Publication	2
Extra Curricular	7

• Faculty achievements during April 2024 to December 2024 are summarized as follows.

Achievements.	Count
Ongoing Funded Projects	8
Journal Publication	25
PhD completed-Research Centre	4

		Conference	7
		Design patent granted	1
		Utility patent granted	1
		Copy right granted	1
		Book Chapter	5
		FDP attended	7
		Resource Person	7
		Reviewer	5
		NPTEL Certification	3
		No of events organized	12
		• BoS members appreciated the faculty and students contributions.	

009.04.00 : Approval of 8th BoS Meeting Minutes & Action taken

Name of the Course	Suggestions from BoS members	Action Taken
One credit course	The members suggested to include the text book titled Operation and Maintenance of Electrical Equipment by B V S Rao for the course Operation and Maintenance of Electrical Equipment.	The book suggested by the members are included as text book in the syllabus.
Over & above credits	The members suggested to handle the courses by the experts from the industry	Value added courses are handled by the industrial experts. The students have undergone internship at industry.

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Date: 03.02.2025

Department of Electrical and Electronics Engineering

(Accredited by NBA, New Delhi)

Submitted to the Principal through Chief Co-Ordinator (Academic Courses)

Sub: Requesting permission to nominate the three member committee for **Value added course** – 2023 – 2027 Batch II year UG candidates in 2024 – 2025 EVEN Semester – Reg.

As per the current needs in industry, we need to provide the **Value added course for** 2023 – 2027 Batch II year UG candidates in 2024 – 2025 EVEN Semester. In connection with this clause, three members committee has been constituted to scrutinize the **Value added course** evaluation.

Members List

S. No.	Members	Category
1	Dr. D. Prince Winston, Head & Prof./EEE	Head of the Department
2	Dr.B.Gurukarthik babu, AP / EEE	PG chairperson
3	Er. R. Ganesan AP / EEE	UG course coordinator

We hereby request you to provide permission to nominate the above said three members committee to review the **Value added course**.

HoD/EEE
Dr. D. Prince Winston

Chief Co-Ordinator (Academic Courses)
Dr. S. Suresh Babu

Principal
Dr. S. Senthil

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Department of Electrical and Electronics Engineering

(Accredited by NBA, New Delhi)

Submitted to the Principal through Chief Co-Ordinator (Academic Courses)

Sub: Requisition to recommend "**Embedded system and PCB Designing**" for 2023 – 2027 Batch II year UG candidates in 2024 – 2025 EVEN semester.

As per the current needs in industry, we need to provide the **Value-added course for** 2023 – 2027 Batch II year UG candidates in 2024 – 2025 EVEN Semester. In connection with this clause, three members committee has been constituted to scrutinize the **Value-added course** evaluation, meeting has been convened on 04-01-2025 **(01.30 PM to 02.30 PM)** at PG14, Academic Block – D, EEE Department, Kamaraj College of Engineering and Technology, Virudhunagar.

Members List

S. No.	Members	Category	Signature
1	Dr. D. Prince Winston, Head & Prof./EEE	Head of the Department	
2	Dr.B.Gurukarthik babu, AP / EEE	PG chairperson	
3	Er. R. Ganesan AP / EEE	UG course coordinator	

The three-member committee has recommended the Value-added course **"Embedded system and PCB Designing"** (2024 – 2025 EVEN semester) for 2023 – 2027 Batch.

HoD/EEE
Dr. D. Prince Winston

Chief Co-Ordinator (Academic Courses)
Dr. R. Suresh Babu

Principal
Dr. S. Sathish

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Department of Electrical and Electronics Engineering

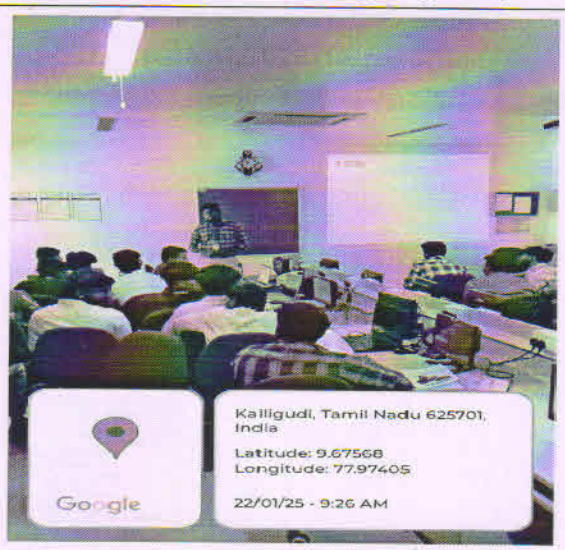
(Accredited by NBA, New Delhi)

In association with Manfree Technologies, Coimbatore.

Value Added Course on "Embedded System and PCB Designing"

2024-25 Even Semester (Jan 2025)

Class: II EEE (2023-2027) Batch

Day 1- 20.01.2025 (Introduction)	Day 2- 21.01.2025 (Working with KiCAD)
	
Day 3- 22.01.2025 (Designing PCB)	**Day 4- 23.01.2025 (Working with MPLAB)**
	

Day 5- 24.01.2025 (Project)	Day 6- 25.01.2025 (Valedictory)
	

27/1/25

Staff Incharge

Dr. A. Rajaul

HoD / EEE

Dr. D. Prince Winston

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Dilipan R

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES017

ASSESSMENT MARK : 87

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Saravana Bhavan S

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES027

ASSESSMENT MARK : 84

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Joseph Amalraj A

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES020

ASSESSMENT MARK : 81

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Siva Pardeepan M

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES030

ASSESSMENT MARK : 84

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Nanthakumar A

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES025

ASSESSMENT MARK : 84

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Madhavan U

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES021

ASSESSMENT MARK : 83

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Vairavan K

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES032

ASSESSMENT MARK : 87

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Vishal R

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES033

ASSESSMENT MARK : 81

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Ms.Mareeswari K

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES023

ASSESSMENT MARK : 88

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Hari Prasad S

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES018

ASSESSMENT MARK : 86

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Ms.Deepthika P

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES016

ASSESSMENT MARK : 87

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Surya Prakash Kumar M

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES031

ASSESSMENT MARK : 84

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Midun Prasanth J

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES024

ASSESSMENT MARK : 85

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Jayabalaguru K

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES019

ASSESSMENT MARK : 85

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Ms.Shanthini S

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES029

ASSESSMENT MARK : 88

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Sasikhanth B

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES028

ASSESSMENT MARK : 85

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Raguram M

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES026

ASSESSMENT MARK : 82

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Mani Kandan N

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES022

ASSESSMENT MARK : 86

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Abdul Malick S

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES034

ASSESSMENT MARK : 79

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Sivakutti M

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES037

ASSESSMENT MARK : 84

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Prasanna S

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES035

ASSESSMENT MARK : 84

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

CERTIFICATE
OF TRAINING

THIS IS TO CERTIFY THAT

Mr.Sanjay C

has successfully completed value added course on "**Embedded Systems & PCB Designing**" from **20.01.2025** to **25.01.2025** conducted by Manfree Technologies, Coimbatore in association with the Department of Electrical and Electronics Enginnering, Kamaraj College of Engineering and Technology, Virudhunagar

CERTIFICATION NO : MT25ES036

ASSESSMENT MARK : 79

MANAGING DIRECTOR
Manfree Technologies

COORDINATOR(S)
KCET

CONVENER
KCET

PRINCIPAL
KCET

A Six Days Value Added Course on "Embedded Systems and PCB Designing"

In Association with Manfree Technologies, Coimbatore

Name of the Student:

Roll No :

S.No	Questions

1. **Expansion and types of PCB are:**
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   b) A Power Control Board; types include AC and DC boards
   c) A Process Control Board; types include Analog and Digital boards
   d) A Programmable Circuit Base; types include Static and Dynamic
2. **Different Layers of PCB are:**
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   b) Substrate, Copper Layer, Solder Mask, Silkscreen
   c) Top Layer, Bottom Layer, Shield Layer
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4. **How many layers can be drawn in multilayer PLC?**
   a) Up to 4 layers b) up to 8 layers c) > 2 layers d) >10 layers
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   c) A layer for labels, symbols, and text d) A conductive layer for tracks
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a) Ability to generate heat in the circuit (b) Voltage supplied to the circuit

c) Resistance provided by the circuit d) Rate of doing work or transferring energy

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b) Compact size, increased functionality, reduced EMI

c) Easier design process and faster prototyping

(d) Reduced complexity and lower manufacturing cost

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(b) A dedicated system designed for specific tasks

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b) 16-bit CPU, no timers, no ADC

c) 32-bit CPU, built-in display, Bluetooth support

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b) Power supply, relay coil, and switching mechanism

c) LED connections onl

d) Analog-to-digital converter and power pins

Dr. D. Princiston

Dr. A. Rajavel.

KAMARAJ
COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
S.P.G.Chidambara Nadar - C.Nagammal Campus
S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

VALUE ADDED COURSE

On

Embedded Systems and PCB Designing

Question for External Examination

You are asked to create the PCB layout of Power supply board to generate 5V and 12V. Print the layout in printed circuit board. Solder the components and verify the outputs

Rubrics for Evaluation:

Design	**(30)**
Soldering & Output	**(30)**
Total	**(60)**

Dr A. Rajavel

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(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
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S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

Department of Electrical and Electronics Engineering

(Accredited by NBA, New Delhi)

In association with Manfree Technologies, Coimbatore

Value added course on "Embedded Systems and PCB Designing"

2024-25 Even Semester (January)

Class: II EEE (2023-27 Batch)

Sl.No	Roll No.	Student Name	20-01-2025		21-01-2025		22-01-2025		23-01-2025		24-01-2025		25-01-2025	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
1.	23UEE001	Dilipan.R												
2.	23UEE002	Saravana Bhavan.S												
3.	23UEE003	Joseph Amalraj.A												
4.	23UEE004	Siva Pardeepan.M					OD	OD						
5.	23UEE005	Nanthakumar.A												
6.	23UEE006	Madhavan.U												
7.	23UEE009	Vairavan.K												
8.	23UEE010	Vishal.R					OD	OD						

Sl.No	Roll No.	Student Name	20-01-2025		21-01-2025		22-01-2025		23-01-2025		24-01-2025		25-01-2025	
			FN	AN	FN	AN	FN	AN	FN	AN	FN	AN	FN	AN
9.	23UEE011	Mareeswari.K												
10.	23UEE012	Hari Prasad.S												
11.	23UEE015	Deepthika.P												
12.	23UEE016	Surya Prakash Kumar.M												
13.	23UEE017	Midun Prasanth.J												
14.	23UEE019	Jayabalaguru.K												
15.	23UEE020	Shanthini.S												
16.	23UEE022	Sasikhanth.B												
17.	23UEE023	Raguram.M	AB											
18.	23UEE024	Mani Kandan.N												
19.	23UEE025	Abdul Malik S												
20.	23UEE026	Siva Kuti M												
21.	23UEE027	Prasanna S												
22.	23UEE028	Sanjay C												

Staff In-Charge
Dr. A. Rajavel AP/EEE

HoD/EEE
Dr. D. Prince Winston

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(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
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S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

SIX DAYS VALUE ADDED COURSE ON "EMBEDDED SYSTEMS AND PCB DESIGNING"

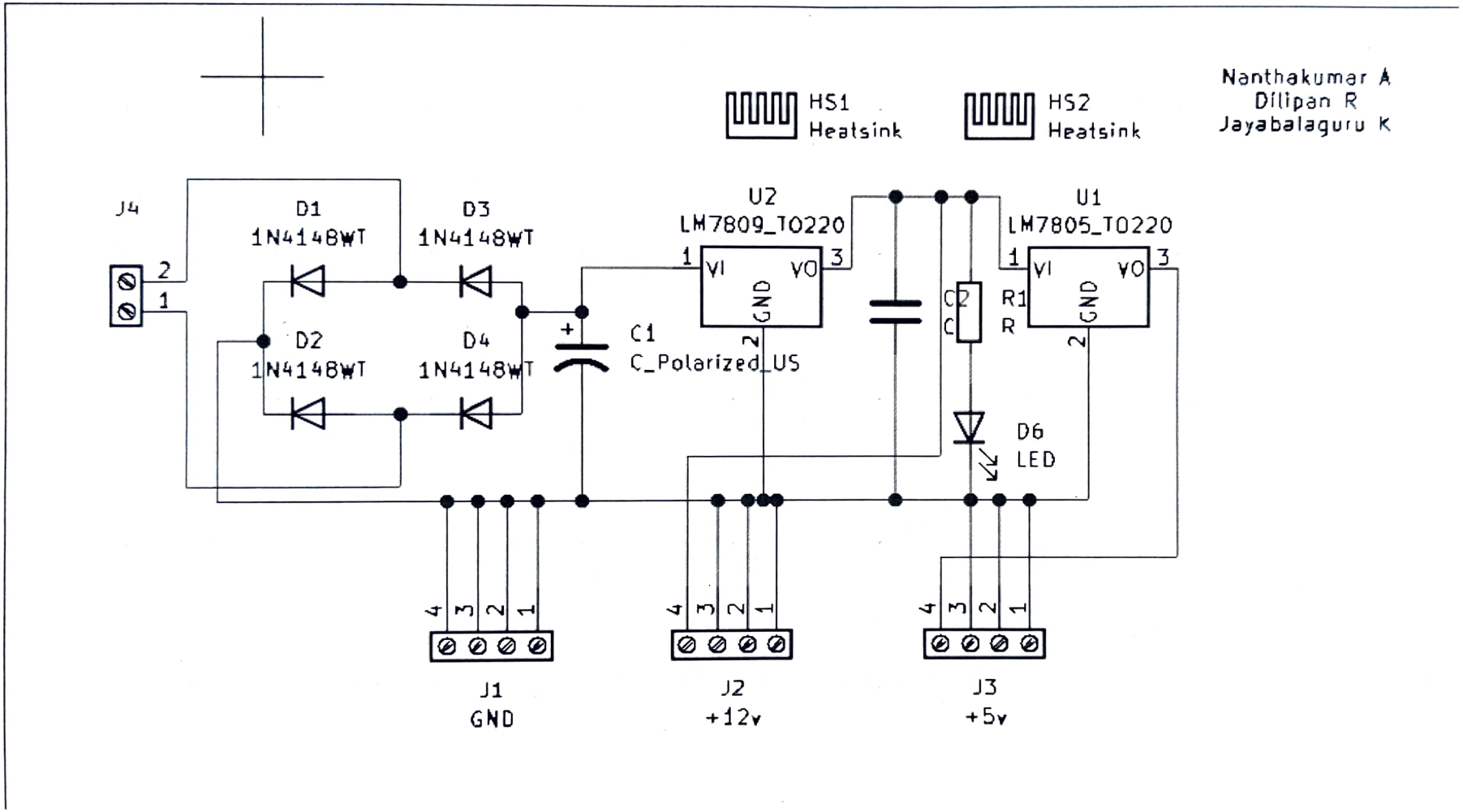
Test Mark	(20)	:	10
Performance	(20)	:	18
Total	(40)	:	28
Design	(30)	:	28
Soldering & Output	(30)	:	28
Total	(60)	:	56
Theory	(40)	:	28
Project	(60)	:	56
Total	(100)	:	84

84%
A.N

NAME OF THE STUDENT : NANTHA KUMAR . A

ROLL NO : 23UEE005

REG. NO : 920423105010


HS1
Heatsink
HS2
Heatsink
Nanthakumar A
Dilipan R
Jayabalaguru K
J4
D1
1N4148WT
D3
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D2
1N4148WT
D4
1N4148WT
C1
C_Polarized_US
U2
LM7809_TO220
VI
VO
GND
U1
LM7805_TO220
VI
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C
R1
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D6
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J1
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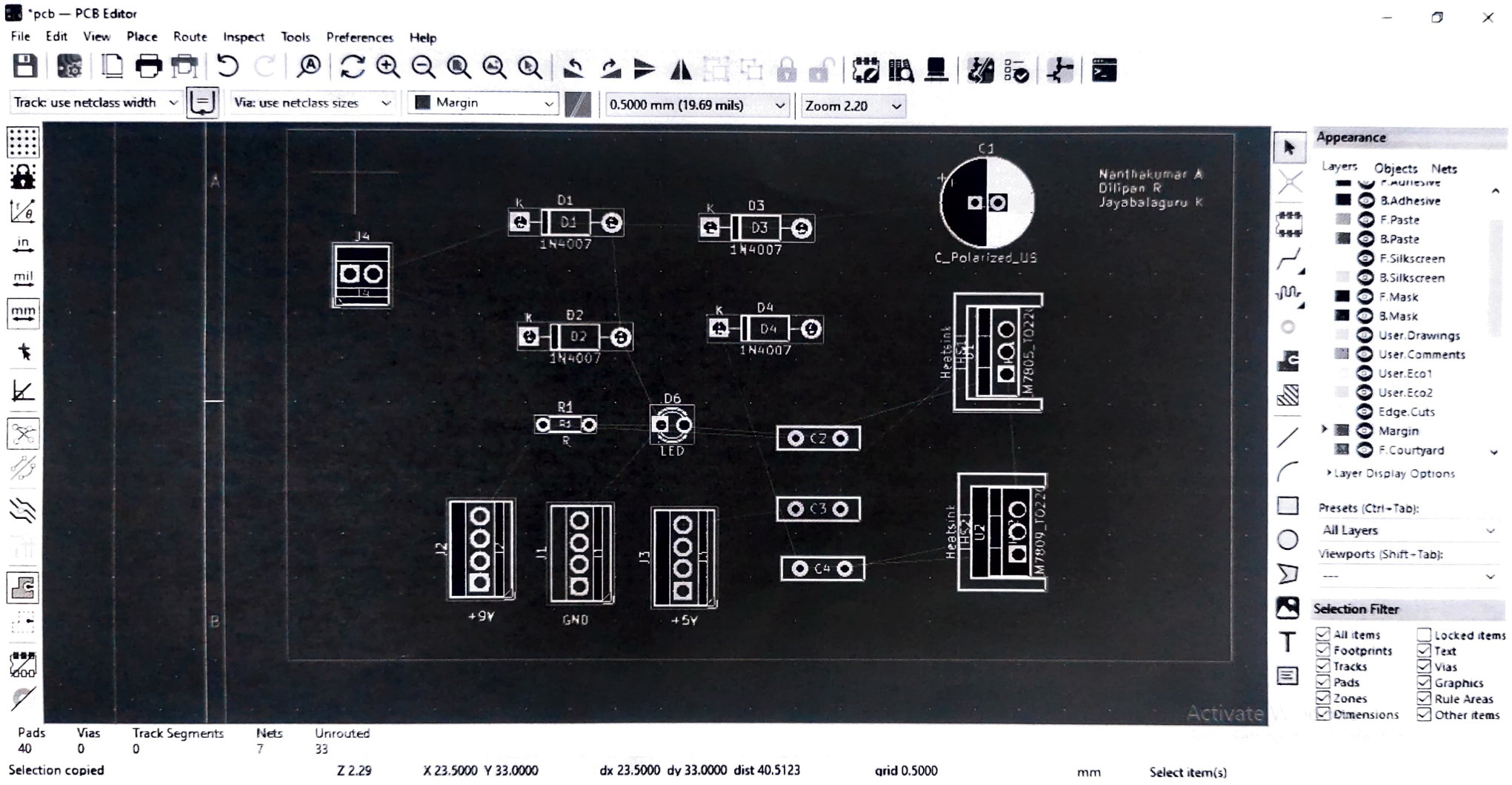
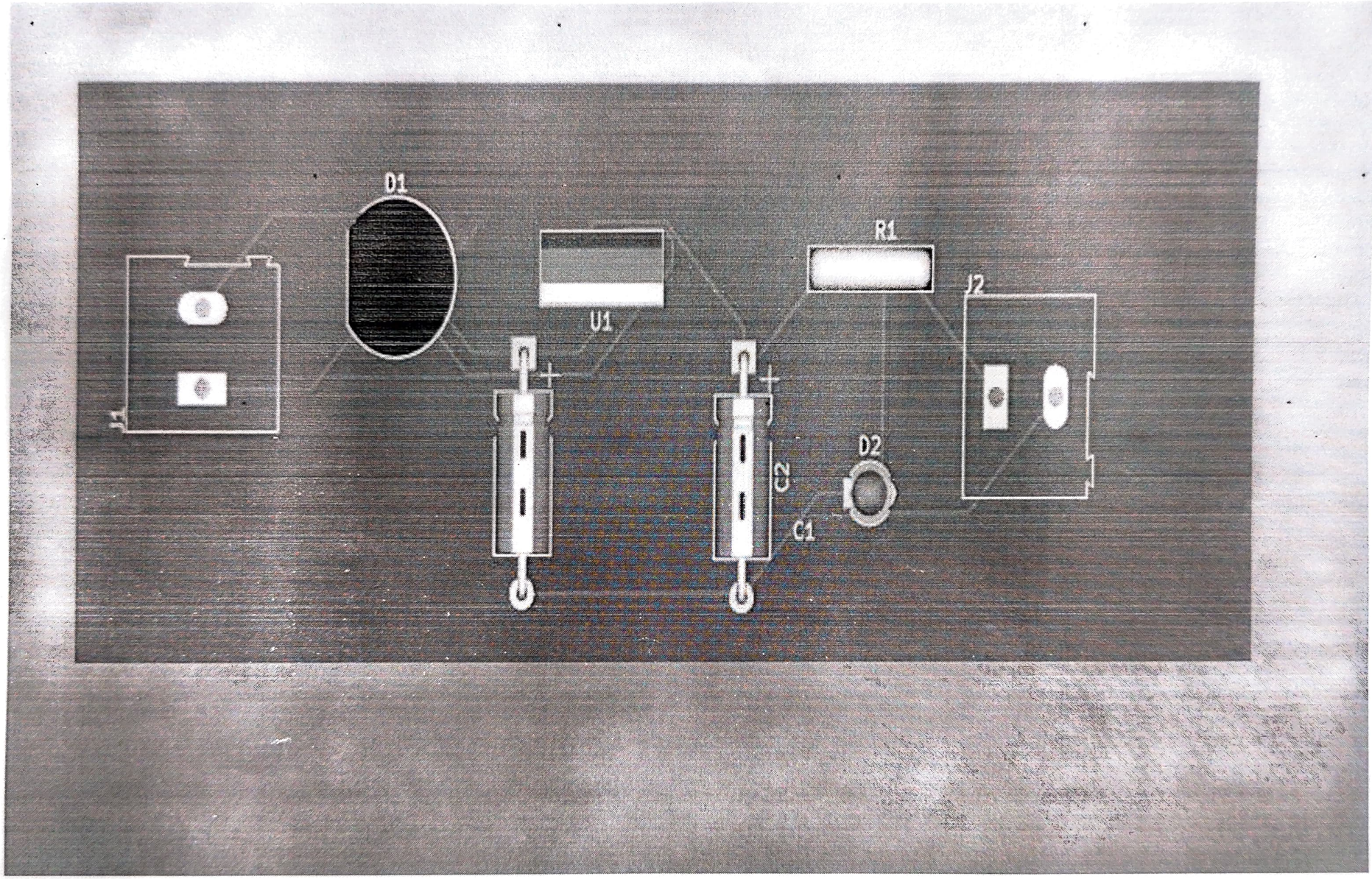
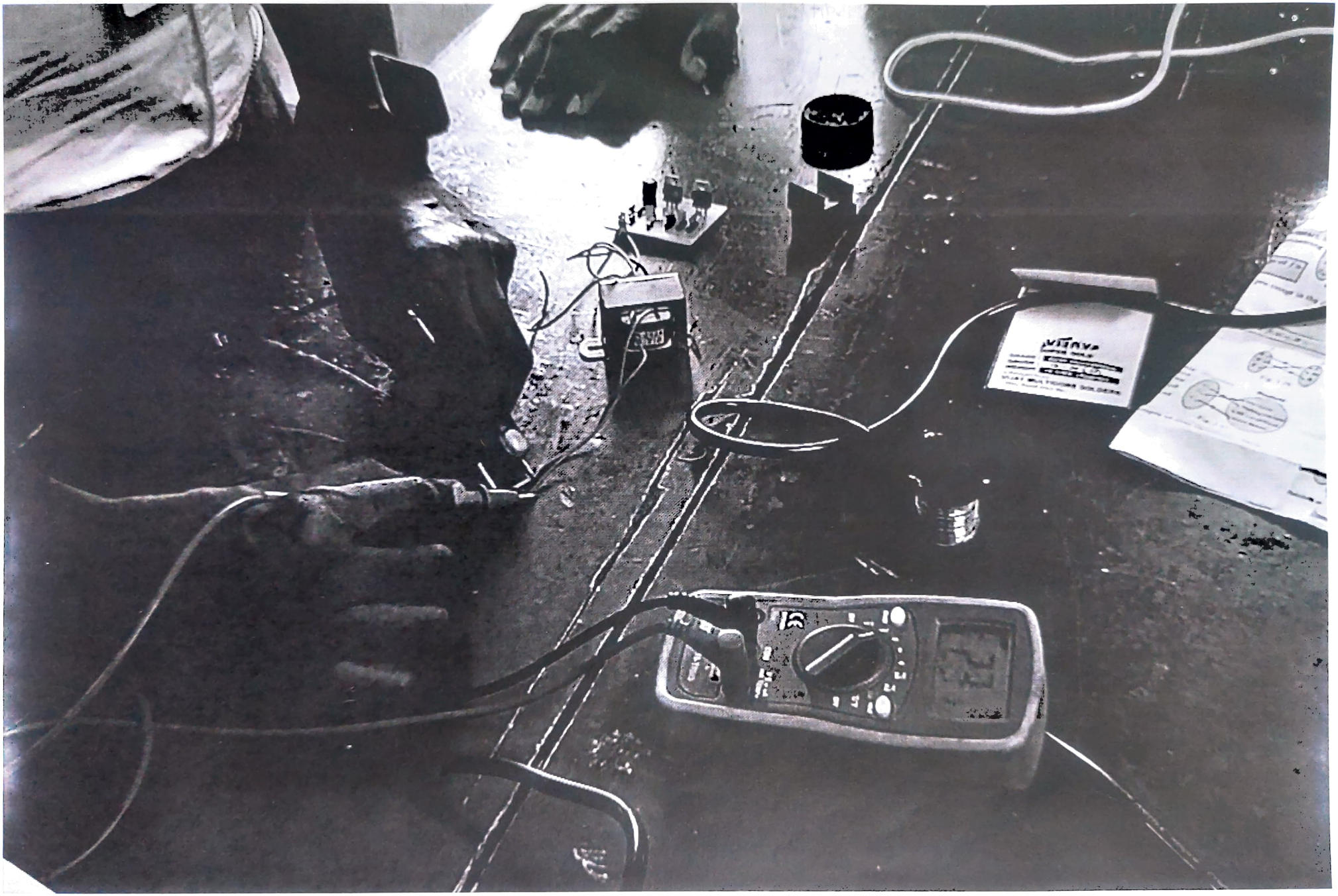
J2
+12v
J3
+5v


*pcb — PCB Editor
File Edit View Place Route Inspect Tools Preferences Help
Track: use netclass width
Via: use netclass sizes
Margin
0.5000 mm (19.69 mils)
Zoom 2.20
Nanthakumar A
Dilipan R
Jayabalaguru K
C1
C_Polarized_US
D1
1N4007
D2
1N4007
D3
1N4007
D4
1N4007
D6
LED
R1
R
J1
J2
J3
J4
C2
C3
C4
U1
M7805_TO22
U2
M7909_TO22
Heatsink
+9V
GND
+5V
Appearance
Layers Objects Nets
B.Adhesive
F.Paste
B.Paste
F.Silkscreen
B.Silkscreen
F.Mask
B.Mask
User.Drawings
User.Comments
User.Eco1
User.Eco2
Edge.Cuts
Margin
F.Courtyard
Layer Display Options
Presets (Ctrl+Tab):
All Layers
Viewports (Shift+Tab):
Selection Filter
All items
Footprints
Tracks
Pads
Zones
Dimensions
Locked items
Text
Vias
Graphics
Rule Areas
Other items
Pads 40
Vias 0
Track Segments 0
Nets 7
Unrouted 33
Selection copied
Z 2.29
X 23.5000 Y 33.0000
dx 23.5000 dy 33.0000 dist 40.5123
grid 0.5000
mm
Select item(s)


D1
U1
R1
J2
J1
C2
D2
C1



A Six Days Value Added Course on "Embedded Systems and PCB Designing"

In Association with Manfree Technologies, Coimbatore

Name of the Student: Nanthakumar. A

Roll No : 23UEE005

S.No	Questions
1.	**Expansion and types of PCB are:**
	a) A Printed Circuit Board; types include Single Layer, Double Layer, Multilayer
	b) A Power Control Board; types include AC and DC boards
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4.	**How many layers can be drawn in multilayer PLC?**
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S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

Six days value added course on "embedded systems and pcb designing"

Test Mark	(20)	: 6
Performance	(20)	: 19
Total	(40)	: 25
Design	(30)	: 28
Soldering & Output	(30)	: 28
Total	(60)	: 56
Theory	(40)	: 25
Project	(60)	: 56
Total	(100)	: 81

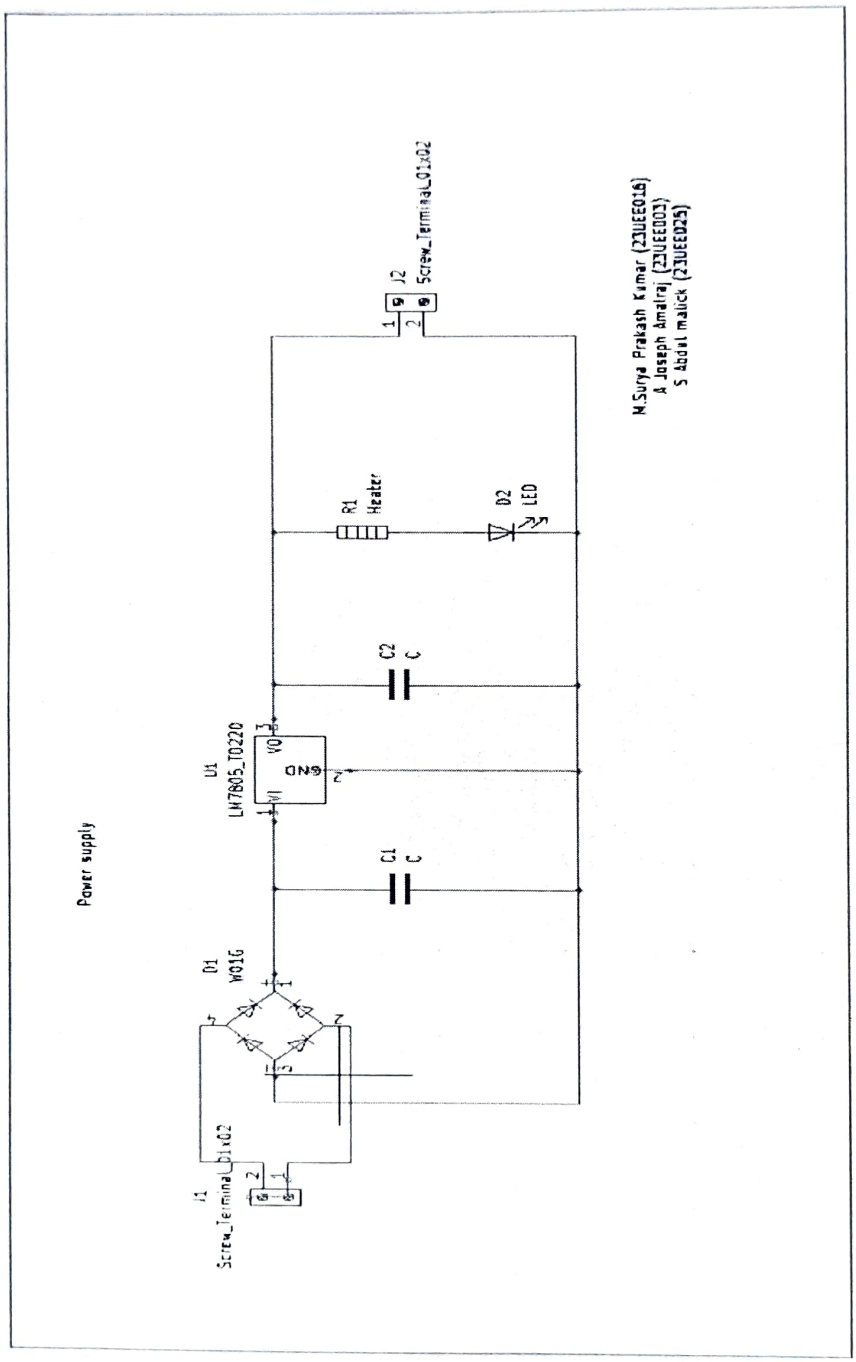
81%

Name of the student : Joseph Amalraj . A

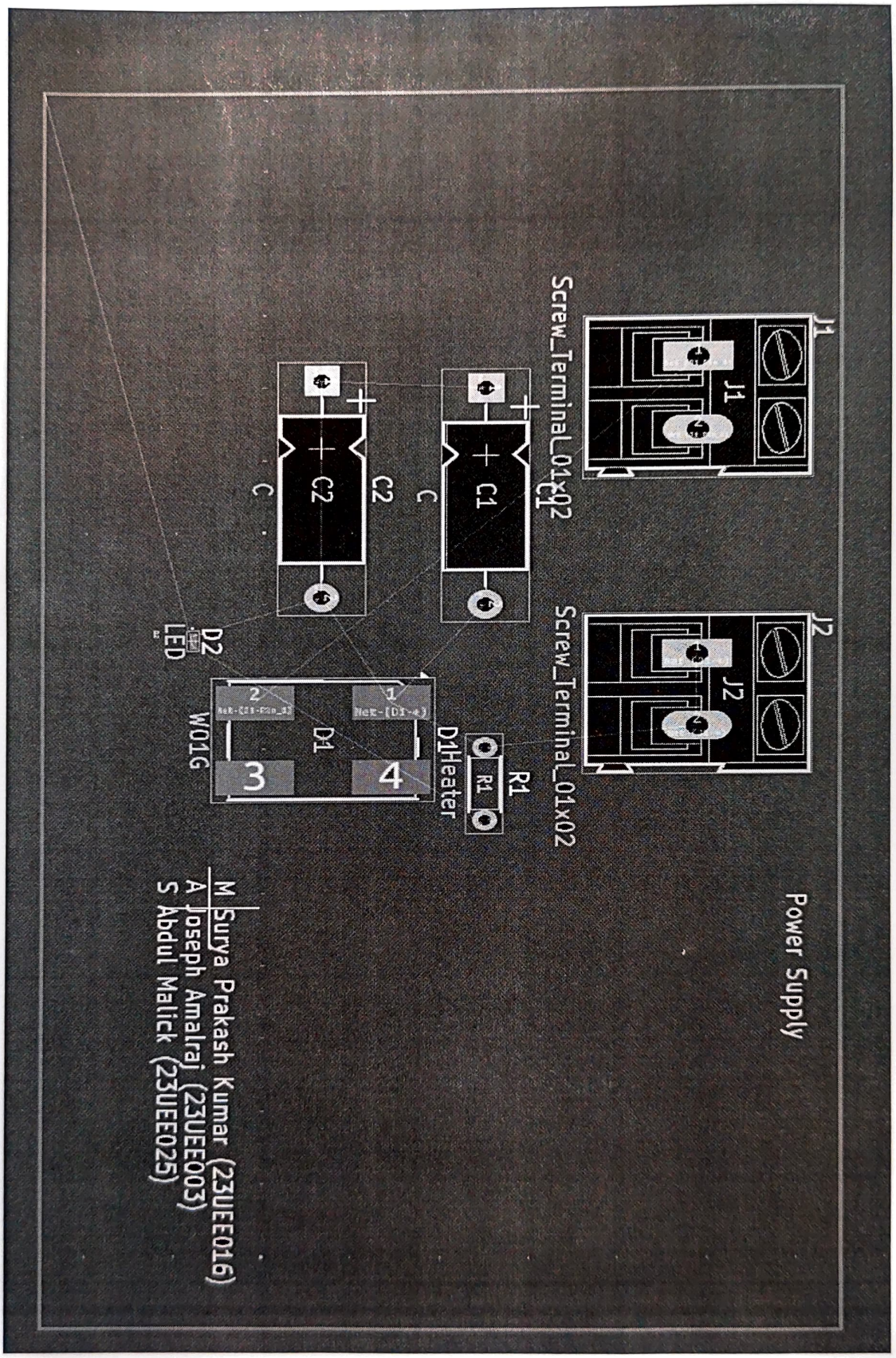
Roll no : 23vee003

Reg. No : 920423105005

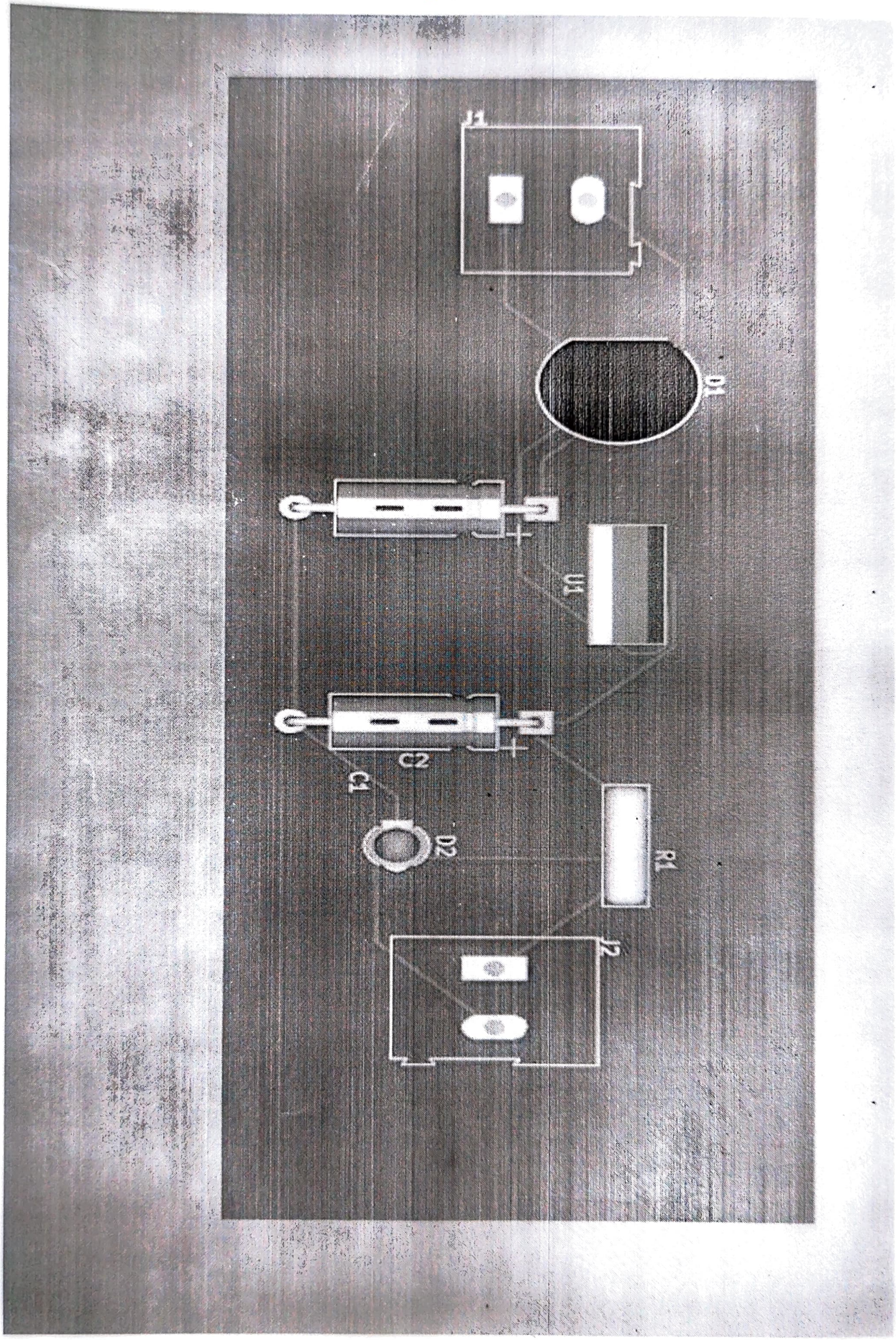
Power supply.



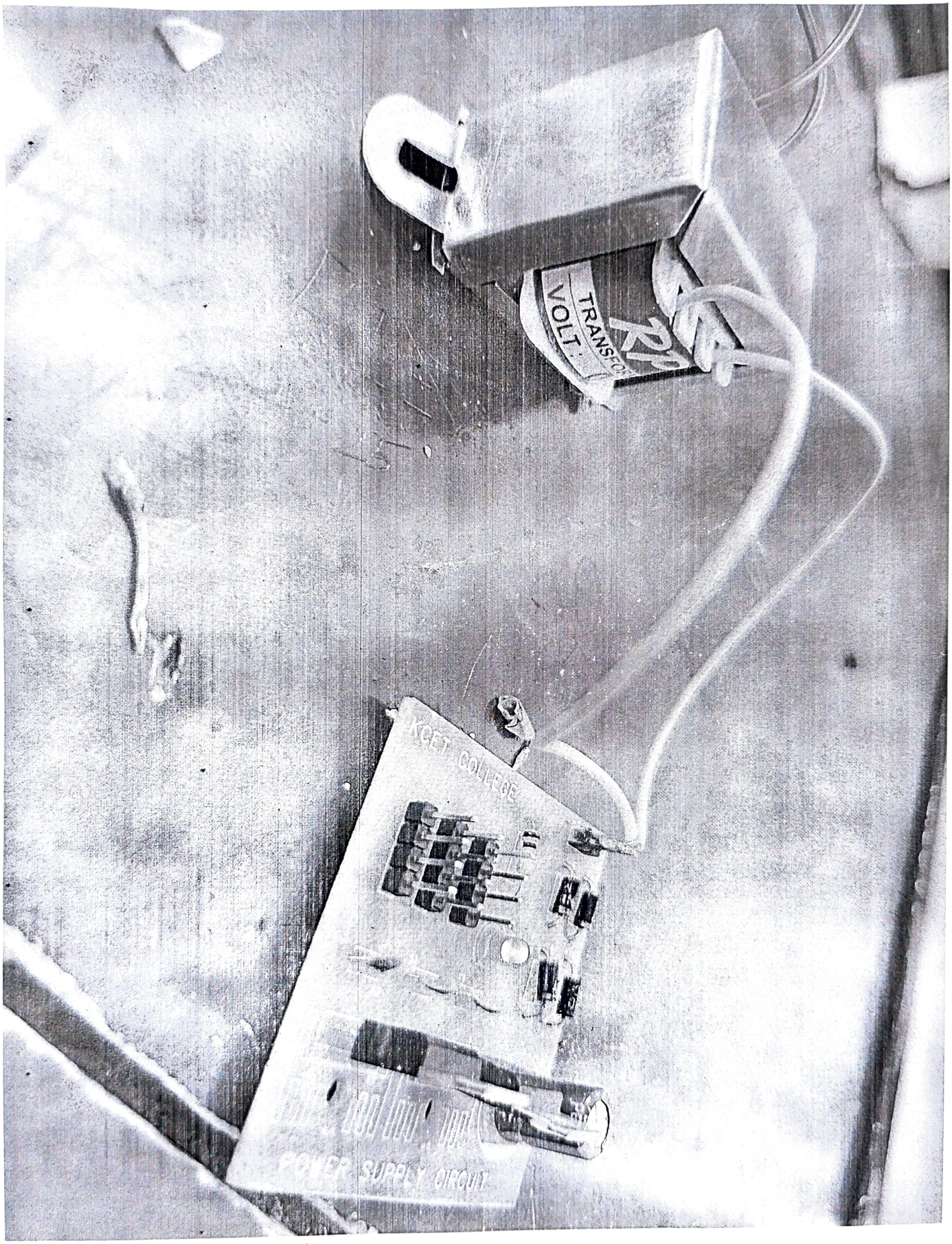
After footprint Apply in Kicad.



3D Views



Find output in PCB



A Six Days Value Added Course on "Embedded Systems and PCB Designing"

In Association with Manfree Technologies, Coimbatore

Name of the Student: Joseph Amalraj A

Roll No : 23UEE003

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b) Power supply, relay coil, and switching mechanism

c) LED connections onl

d) Analog-to-digital converter and power pins

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COLLEGE OF ENGINEERING & TECHNOLOGY
(An Autonomous Institution - AFFILIATED TO ANNA UNIVERSITY, CHENNAI)
S.P.G.Chidambara Nadar - C.Nagammal Campus
S.P.G.C. Nagar, K.Vellakulam – 625 701 (Near VIRUDHUNAGAR).

SIX DAYS VALUE ADDED COURSE ON "EMBEDDED SYSTEMS AND PCB DESIGNING"

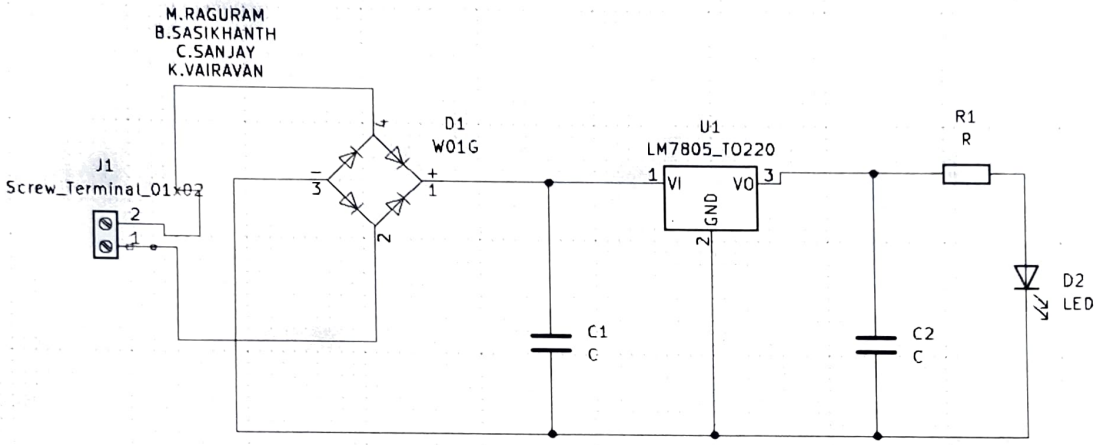
Test Mark	(20)	:	16
Performance	(20)	:	17
Total	(40)	:	23
Design	(30)	:	28
Soldering & Output	(30)	:	28
Total	(60)	:	56
Theory	(40)	:	23
Project	(60)	:	56
Total	(100)	:	79

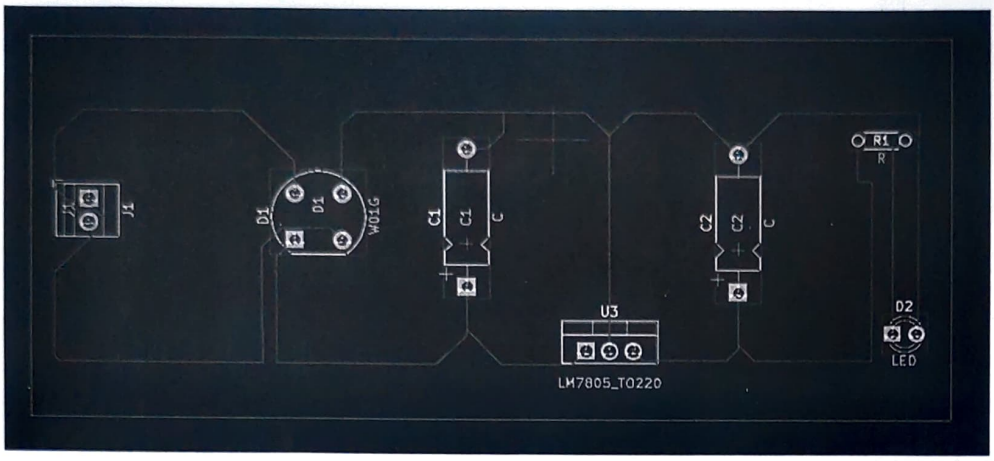
79 %

NAME OF THE STUDENT : Sanjay.C

ROLL NO : 230EE028

REG. NO : 9204 23105 303


M.RAGURAM
B.SASIKHANTH
C.SANJAY
K.VAIRAVAN
J1
Screw_Terminal_01x02
2
1
D1
W01G
4
3
2
1
U1
LM7805_TO220
1
VI
VO
3
GND
2
R1
R
D2
LED
C1
C
C2
C


J1
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W01G
C1
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C
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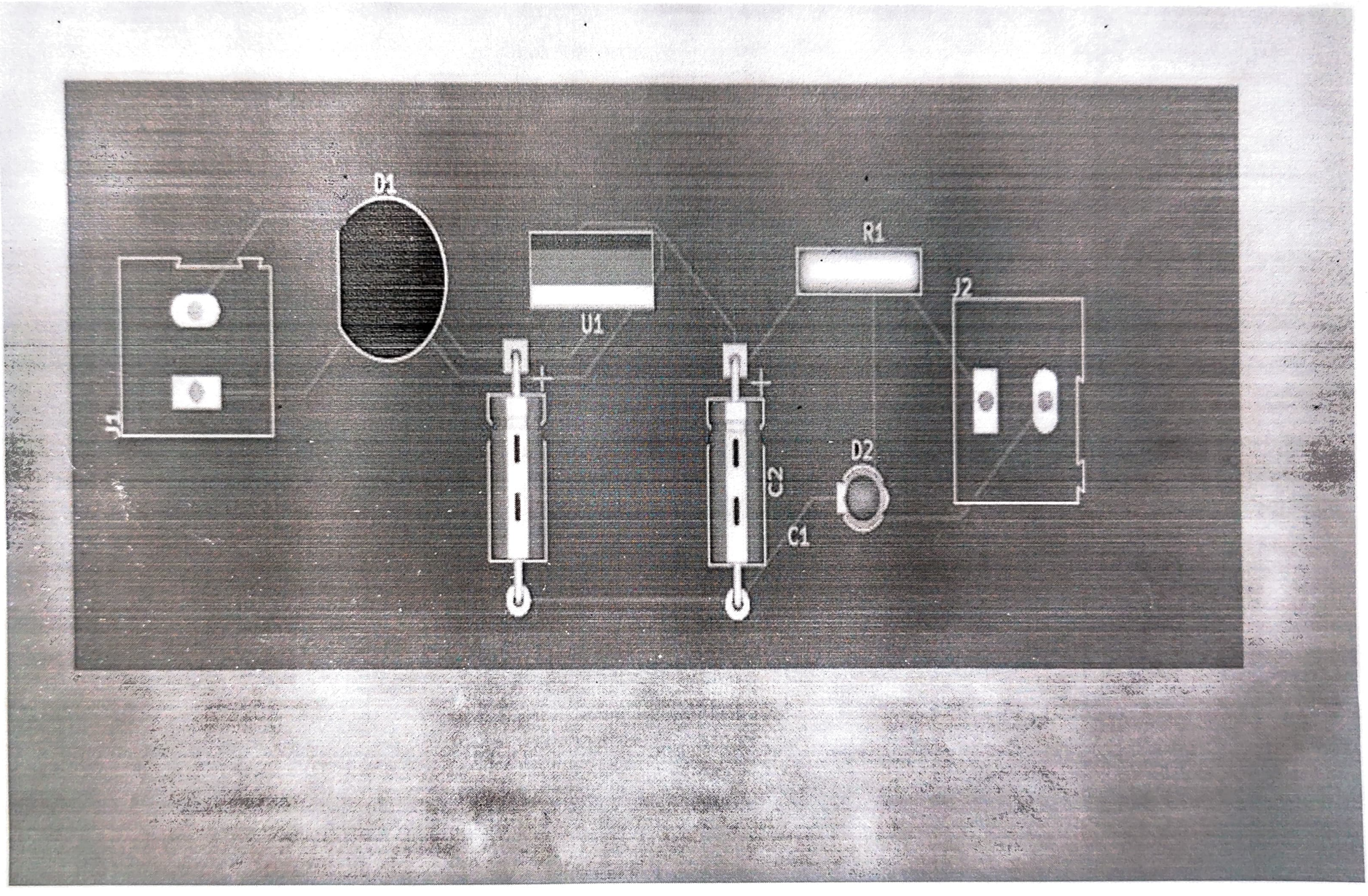
LM7805_TO220
D2
LED


D1
U1
R1
J2
J1
C2
C1
D2

POWER SUPPLY CIRCUIT
TRANSFOR
VOLT:

A Six Days Value Added Course on "Embedded Systems and PCB Designing"

In Association with Manfree Technologies, Coimbatore

Name of the Student: Sanjay. C

Roll No : 23UEE028

S.No **Questions**

1. **Expansion and types of PCB are:**
   a) A Printed Circuit Board; types include Single Layer, Double Layer, Multilayer
   b) A Power Control Board; types include AC and DC boards
   c) A Process Control Board; types include Analog and Digital boards
   d) A Programmable Circuit Base; types include Static and Dynamic
2. **Different Layers of PCB are:**
   a) Base Layer, Middle Layer, Cover Layer
   b) Substrate, Copper Layer, Solder Mask, Silkscreen
   c) Top Layer, Bottom Layer, Shield Layer
   d) Copper Layer, Plastic Layer, Protective Layer
3. **Material used to draw a track on PLC is**
   a) Aluminum b) Copper c) Silver d) Gold
4. **How many layers can be drawn in multilayer PLC?**
   a) Up to 4 layers b) up to 8 layers c) > 2 layers d) >10 layers
5. **What is meant by a silk screen in PCB?**
   a) A layer used for electrical connections b) A protective layer against heat
   c) A layer for labels, symbols, and text d) A conductive layer for tracks
6. **Etching in PCB design means**
   a) Adding labels to the PCB b) Removing unwanted copper from the PCB
   c) Placing components on the PCB d) A conductive layer for tracks
7. **Why is a 90-degree angle not recommended for PCB tracks?**
   a) causes heat dissipation issues b) increases electromagnetic interference (EMI)
   c) It weakens the mechanical structure of the board
   d) reduces the conductivity of the tracks

8. **The term power in the context of electronics is**

a) Ability to generate heat in the circuit b) Voltage supplied to the circuit

c) Resistance provided by the circuit d) Rate of doing work or transferring energy

9. **Purpose of power supply circuit is**

a) To provide mechanical stability to a PCB

b) To convert AC voltage to DC voltage

c) To amplify electronic signals

d) To regulate temperature in circuits

10. **Advantage of using a multilayer PCB is**

a) Increased size and weight, better heat resistance

b) Compact size, increased functionality, reduced EMI

c) Easier design process and faster prototyping

d) Reduced complexity and lower manufacturing cost

11. **What is an embedded system?**

a) A system designed for general-purpose computing

b) A dedicated system designed for specific tasks

c) A software program for hardware control

d) A portable computing system

12. **Features and functionality of the PIC16F887 microcontroller are**

a) 8-bit CPU, no timers, ADC, PWM

b) 16-bit CPU, no timers, no ADC

c) 32-bit CPU, built-in display, Bluetooth support

d) 8-bit CPU, has timers, ADC, PWM

13. **How many timers are available in the PIC16F887 microcontroller?**

a) 2 b) 3 c) 4 d) 5

14. **ADC Resolution in PIC16F887 microcontroller is**

a) 8 bit b) 16 bit c) 10 bit d) 32 bit

15. **Purpose of pulse width modulation is**

a) A method for modulating voltage using resistors

b) A technique to generate analog signals using digital pulses

c) A way to reduce circuit power consumption

d) A method to increase the speed of microcontroller tasks

16. **The term protocol in PIC microcontroller is**

a) A set of rules for data transfer between devices

b) A system for power management in circuits

c) A method to manage microcontroller tasks

d) A standard for designing PCBs

17. **How many protocols are supported by PIC 16F887?**

a) 3 b) 4 c) 5 d)2

18. **What is the purpose of a car indicator task program using the PIC16F887?**

a) To manage the speed of the car b) To control the turning signal lights

c) To measure fuel consumption d) To monitor the car's battery voltage

19. **What is the goal of a program to display numbers from 9 to 0 on a 7-segment display?**

a) To display alphabetical characters

b) To show numbers in ascending order

c) To count down from 9 to 0 in sequence

d) To randomly display numbers

20. **What does a circuit diagram for a relay include?**

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b) Power supply, relay coil, and switching mechanism

c) LED connections onl

d) Analog-to-digital converter and power pins

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Department of Electrical and Electronics Engineering
(Accredited by NBA, New Delhi)
In association with Manfree Technologies, Coimbatore.
Value Added Course on "Embedded systems and PCB Designing"
2024-25 EVEN Semester (Jan 2025)
Class: II EEE (2023-2027) Batch
Regulation: R2021

S. No.	Register Number	Roll Number	Name	Assessment (40)	Project (60)	Total (100)
1	920423105002	23UEE001	DILIPAN.R	31	56	87
2	920423105012	23UEE002	SARAVANA BHAVAN.S	28	56	84
3	920423105005	23UEE003	JOSEPH AMALRAJ.A	25	56	81
4	920423105015	23UEE004	SIVA PARDEEPAN.M	28	56	84
5	920423105010	23UEE005	NANTHAKUMAR.A	28	56	84
6	920423105006	23UEE006	MADHAVAN.U	27	56	83
7	920423105017	23UEE009	VAIRAVAN.K	31	56	87
8	920423105018	23UEE010	VISHAL.R	27	54	81
9	920423105008	23UEE011	MAREESWARI.K	32	56	88
10	920423105003	23UEE012	HARI PRASAD.S	30	56	86
11	920423105001	23UEE015	DEEPTHIKA.P	31	56	87
12	920423105016	23UEE016	SURYA PRAKASH KUMAR.M	28	56	84
13	920423105008	23UEE017	MIDUN PRASANTH.J	29	56	85
14	920423105006	23UEE019	JAYABALAGURU.K	29	56	85
15	920423105014	23UEE020	SHANTHINI.S	31	57	88
16	920423105013	23UEE022	SASIKHANTH.B	29	56	85
17	920423105011	23UEE023	RAGURAM.M	26	56	82
18	920423105007	23UEE024	MANI KANDAN.N	29	57	86
19	920523105301	23UEE025	ABDUL MALIK S	25	54	79
20	920523105304	23UEE026	SIVA KUTI M	28	56	84
21	920523105302	23UEE027	PRASANNA S	28	56	84
22	920523105303	23UEE028	SANJAY C	23	56	79

Staff I/C

Dr.A.Rajavel

HoD/EEE

Dr. D. Prince Winston

Chief Co-Ordinator(Academic)

Dr. S. Suresh Babu

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TECHNOLOGIES

Date: 7th February 2025

To
The Principal
Kamaraj College of Engineering & Technology,
K. Vellakulam - 625 701

Kind. Attn. The HoD, Dept. of Electrical & Electronics Engineering.

Dear Sir,
I have attached the students marks for the Value Added Course on Embedded Systems & PCB Designing that we conducted from 20th January 2025 to 25th January 2025 in College campus.

For Manfree Technologies

Gugankumar P
Managing Director

MANFREE TECHNOLOGIES

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Department of Electrical and Electronics Engineering (Accredited by NBA, New Delhi)

In association with Manfree Technologies, Coimbatore.

Value Added Course on "Embedded systems and PCB Designing"

2024-25 EVEN Semester (Jan 2025) Class: II EEE (2023-2027) Batch

Regulation: R2021

S. No.	Register Number	Roll Number	Name	Assessment (40)	Project (60)	Total (100)
1	920423105002	23UEE001	DILIPAN.R	31	56	87
2	920423105012	23UEE002	SARAVANA BHAVAN.S	28	56	84
3	920423105005	23UEE003	JOSEPH AMALRAJ.A	25	56	81
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22	920523105303	23UEE028	SANJAY C	23	56	79

MANFREE TECHNOLOGIES

Feedback on "A Six-Day Value-Added Course on Embedded Systems and PCB Designing"

* This form will record your name, please fill your name.

1. Name of the Student

2. Roll No:

3. Was the program useful to you?

☆ ☆ ☆ ☆ ☆

4. Whether the objectives of the program was met?

☆ ☆ ☆ ☆ ☆

5. Has the trainer taught clearly and precisely?

☆ ☆ ☆ ☆ ☆

6. Has the trainer clarified your doubts?

☆ ☆ ☆ ☆ ☆

7. Whether session was interactive?

☆ ☆ ☆ ☆ ☆

8. Is Infrastructure facility satisfied?

☆ ☆ ☆ ☆ ☆

9. Do you prefer this program can be given to your juniors or seniors?

10. What other kind of programs do you need in future?

Dr. D. Rajesh

Dr. D. Thirunavukkarasu

Responses Overview Active

Responses	Average Time	Duration
21	03:23	14 Days

1. Name of the Student

21
Responses

Latest Responses
"Nanthakumar A"
"Visual.R"
"S.Shanthini"
...

3 respondents (14%) answered M for this question.

2. Roll No

21
Responses

Latest Responses
"23uee005"
"23uee010"
"23UEE020"
...

1 respondents (5%) answered 23UEE016 for this question.

3. Was the program useful to you?

4.81
Average Rating

4. Whether the objectives of the program was met?

4.62
Average Rating

5. Has the trainer taught clearly and precisely?

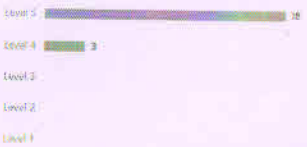
4.81
Average Rating

6. Has the trainer clarified your doubts?

4.90
Average Rating

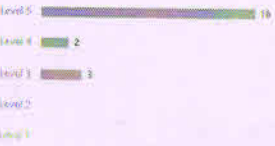
7. Whether session was interactive?

4.86
Average Rating



8. Is Infrastructure facility satisfied?

4.62
Average Rating



9. Do you prefer this program can be given to your juniors or seniors?

18
Responses

Latest Responses
"Yes"
"Yes"
...

15 respondents (83%) answered Yes for this question.

Juniors **Yes** Definitely

10. What other kind of programs do you need in future?

21
Responses

Latest Responses
"Java"
"Iot"
"VLSI"
...

3 respondents (14%) answered CAD for this question.

Dr. D. Rajavel

Dr. D. Prince Winston

View results

Respondent

2 DILIPAN.R

03:03
Time to complete

1. Name of the Student

Dilipan.R

2. Roll No:

2sud-081

3. Was the program useful to you?

4. Whether the objectives of the program was met?

5. Has the trainer taught clearly and precisely?

6. Has the trainer clarified your doubts?

7. Whether session was interactive?

8. Is Infrastructure facility satisfied?

9. Do you prefer this program can be given to your juniors or seniors?

YES

10. What other kind of programs do you need in future?

Help to attend the placement

Dr. A. Rajaram

Dr. D. Princewinston

View results

Respondent

3 MAREESWARI K

03:20

Time to complete

1. Name of the Student

K.Mareeswari

2. Roll No

23UEE011

3. Was the program useful to you?

4. Whether the objectives of the program was met?

5. Has the trainer taught clearly and precisely?

6. Has the trainer clarified your doubts?

7. Whether session was interactive?

8. Is Infrastructure facility satisfied?

9. Do you prefer this program can be given to your juniors or seniors?

Yes

10. What other kind of programs do you need in future?

Advance embedded system

Dr. D. Rajavel

Dr. D. Prince William

View results

Respondent

1 SURYA PRAKASH KUMAR.M

01:16
Time to complete

1. Name of the Student

SURYA PRAKASH KUMAR.M

2. Roll No:

23UEE016

3. Was the program useful to you?

4. Whether the objectives of the program was met?

5. Has the trainer taught clearly and precisely?

6. Has the trainer clarified your doubts?

7. Whether session was interactive?

8. Is Infrastructure facility satisfied?

9. Do you prefer this program can be given to your juniors or seniors?

Yes

10. What other kind of programs do you need in future?

Programming languages

Dr. D. Rajavel

Dr. D. Prince Winston

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Six days Value added Course on Embedded Systems and PCB Designing

Resource Person : S. Saravanan

Designation : Research and Development (Embedded)

Company : Manfree Technologies, Coimbatore

Day 1: 20-01-2025

The resource person introduced electrical parameters and their standards in a simple way. He went on to describe voltage and current in detail for an illiterate individual. He suggested a straightforward parallel connection between the bulb and the power supply. He also clarified why DC conversion is necessary. He illustrated the resistor value design for a basic semiconductor circuit. He instructed the pupils to determine the value of the resistance in a simple circuit.

After finishing the theoretical section, the resource person began a hands-on session with Proteus 8.0 professional software. To open a new PCB design, students should click the ISIS symbol at the top (in the sixth position). A fresh PCB layout will be opened. To insert the needed component, students should click the P button on the device panel. Then, he or she must input the component's name and click the OK button. This will insert the component in the PCB layout.

The resource person demonstrated some simple electrical circuit by drawing and simulating them. The hands-on session includes glowing of single LED, Power supply design, running a dc motor, working with relay and rotating the motor in bidirectional using switch control.

After completing the simple exercises in Proteus, the resource person played a video on the recent techniques used for the fabrication of printed circuit board. He explained the different types of printed circuit board. Then he moved to a hands-on session on KiCAD software. After opening the KiCAD software, the students should click schematic editor icon. Then by clicking the add symbol icon present in the right corner of the window. Add the necessary components in the schematic editor. He demonstrated how to create the PCB layout using KiCAD software for all the hands on performed in proteus.

Day 2: 21-01-2025

In the second day, the resource person continues with error checking mechanism. After viewing the 3D view, the students should select assign foot print toolbar. A panel will open which contains all the elements in the schematic diagram. Each element should be assigned with its foot print labels containing type, size of drill required etc. After assigning all the footprints students should click tool in toolbar menu and update the PCB. If there is no error, then PCB layout will be created. Students should place the components in the layout so that no crossover in connection occurs. Then he should draw the margin either in square or circle shape selecting from appearance panel. The track can be drawn either in front side or back side so

that no crossover occurs. By clicking track icon and either front/back icon in appearance panel the track can be drawn between each component. After the completion, click the design rule checker icon and click Run DRC for checking error in any track. If there is no error, the entire PCB layout should be drawn with edge cut box present in the appearance panel. Then click file toolbar and select fabrication output. Choose Gerbers format for printing the board. After the completion of Power supply design by all the batches, it was given for hardware printing.

Day 3: 22-01-2025

The resource person gave an introduction to embedded system with the help of embroidery work. He gave an idea of what is embedded system and its applications. The detailed description of architecture of PIC microcontroller was given. He also gave tips about how to use data sheets. He summarised what he is going to teach for the next three days. He explained the different types of sensors and gave some activities related with data sheets and sensor usage. He asked few questions related to datasheet and the students searched the answer in datasheet and delivered the answers.

After the introduction, the resource person introduced the concept of C programming. He gave lecture on the different types of registered used for programming the PIC controller. He also informed how to assign the values for each bit in the corresponding register. Then programming tips were shared. The step-by-step procedure was given to simulate the application in PIC. Initially, the students should open the proteus and place the required components. Connection for the all the components need to be given. After giving the connection, the students should open MPLAB IDE to write the C code for PIC microcontroller. He has to open the new project and assign the environmental variables. Then open the new file and add the file to the project. After completing the code, he has to build and rebuild the code. If there is no error, a .hex file will be generated. The location and the name of the file should be noted. Then he has to open the proteus and select the PIC microcontroller properties. He has to include the .hex file and run the circuit.

Day 4 & 5: 23-01-2025 & 24-01-2025

In day 4, the students were given hands on different applications of PIC microcontroller and how to interface external components to PIC microcontroller. The students completed the exercises.

In day 5, the stimulated exercises were implemented in the hardware by downloading the program in PIC microcontroller.

Day 6: 25-01-2025

The students were given training on soldering and they soldered the Power supply PCB board in the morning session. The tests were conducted in afternoon session followed by valedictory function.

Manfree Technologies
12/2 RVM Complex, Avinashi Road,
SITRA, Coimbatore - 641 014
Phone: 9944766990
Email: info@manfreetechnologies.com
GSTIN: 33ASXPG8993P3ZD
(Composition Taxpayer)
State Name: Tamil Nadu, **Code:** 33

Bill of Supply

To

☑ Original ☐ Duplicate

The Principal,
Kamaraj College of Engineering & Technology
K. Vellakulam - 625 701

State: Tamilnadu **Code:** 33

Invoice No: **24-25-426**
Date of Issue: **07.02.2025**

SL. No	Description Of Goods/Service	HSN/SAC	No. of Students	Cost Per Student (₹)	Amount (₹)
01	**6 Days Value Added Course on Embedded Systems & PCB Designing**	999293	**20**	1,750.00	**35,000.00**
02	**PCB Board fabrication**	853400	**1**	1,900.00	**1,900.00**

Total Invoice Amount (in words):
INR- Thirty Six Thousand and Nine Hundred only E. & O.E

Total (₹) **36,900.00**

Declaration:- "Composition taxable person, not eligible to collect tax on supplies"

Bank Details:
Account Name : **Manfree Technologies**
Account Number : **3333044529**
Bank : **Central Bank of India**
Branch : **Kalapatti, Coimbatore**
IFSC Code : **CBIN0282057**

Declaration:
We declare that this invoice shows the actual price of the goods/service described and that all particulars are true and correct.(SUBJECT TO COIMBATORE JURISDICTION)

MANFREE TECHNOLOGIES

For Manfree Technologies

Authorised Signatory