



POORNIMA

COLLEGE OF ENGINEERING

Promoted by Shanti Education Society, Affiliated to Rajasthan Technical University & Approved by AICTE

A Report on "PCB DESIGNING WORKSHOP"

NAME OF ACTIVITY: PCB Designing Workshop

DATE & DURATION: 8 December 2023

TYPE OF ACTIVITY: Co-Curricular

ORGANIZED BY: Department of Electronics & Communication Engineering

LEARNING OUTCOMES:

LO1-Helps reach education goals through free expression, debates, cooperation, coordination, etc.

LO2-Developshabitsofconstructivecompetition, improves skills and competence

LO3-Developsasenseofresponsibilityandbelongingness

LO4-Developsdecision-makingskills

LO5-Developsleadership, managerial, and organizing skills

LO6-Creates opportunities to meet with other like-minded students for socialization, self-assessment, and cultural awareness

MAPPINGSWITHPOANDPSO:

LO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
LO-1						3	2	2	3	3		2	2		3
LO-2						3	2	2	3	3		2	2		3
LO-3						3	2	2	3	3		2	2		3
LO-4						3	2	2	3	3		2	2		3
LO-5						3	2	2	3	3		2	2		3
LO-6						3	2	2	3	3		2	2		3

Dr. Mahesh Bundeja
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NOTICE:



POORNIMA

COLLEGE OF ENGINEERING

Affiliated to RTU, Kota • Approved by AICTE & UGC under 2(f) • Accredited by NBA

PCE/EC/2023-24/06

Date: 7-12-2023

NOTICE

Department of Electronics and Communication

It is to inform you all that Department of Electronics and Communication Engineering is organize a Workshop “**PCB DESIGNING**” on **8 December, 2023**. It is mandatory to attend for second year, third year and final year students.

Time :- 08:00 A.M. to 2:00 P.M.

Venue:- R&D Lab


Dr. Garima Mathur

Head, Department of Electronics and Communication Engineering

CC:

- To All Concerned
- To Department Notice Board


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DESCRIPTION OF THE EVENT:

Designing a Printed Circuit Board (PCB) is a crucial aspect of electronic product development. PCBs serve as the backbone of electronic systems, providing a platform for components to be interconnected and ensuring the proper functioning of the device. Here is a comprehensive report on PCB design, covering key aspects of the process.

Introduction

A. Definition

A PCB is a flat board that supports and connects electronic components using conductive pathways, tracks, or signal traces etched from copper sheets laminated onto a non-conductive substrate.

B. Importance

Efficient PCB design is essential for the optimal performance, reliability, and manufacturability of electronic devices. It influences factors such as signal integrity, electromagnetic interference (EMI), thermal management, and overall system cost.

Key Steps in PCB Design

A. Schematic Design

Component Selection: Choose electronic components based on the project requirements.

Schematic Capture: Create a schematic diagram using specialized software to represent the interconnections between components.

B. Component Placement

Footprint Design: Define the physical dimensions and electrical properties of each component.

Placement Strategy: Optimize the arrangement of components to minimize signal interference, reduce trace lengths, and facilitate efficient routing.

C. Routing

Signal Traces: Route signal traces to connect components while adhering to design rules.

Power and Ground Planes: Implement solid power and ground planes to enhance signal integrity and reduce noise.

Differential Pair Routing: Employ differential pair routing for high-speed signals to maintain signal integrity.

D. Design Validation

Design Rule Checking (DRC): Use DRC tools to ensure the design complies with manufacturing constraints and specifications.

Simulation: Perform simulations (e.g., SPICE simulations) to assess the electrical performance of the circuit.

E. Gerber File Generation

Layer Generation: Create Gerber files to represent different layers of the PCB.

Manufacturing Files: Generate additional files, such as the Bill of Materials (BOM) and assembly drawings.

III. Challenges and Considerations

A. Signal Integrity

Impedance Matching: Ensure impedance matching for high-speed signals.

Crosstalk Mitigation: Implement strategies to minimize crosstalk between adjacent signal traces.

B. Thermal Management

Heat Dissipation: Design the PCB layout to facilitate effective heat dissipation.

Thermal Relief: Use thermal relief pads for components connected to ground planes to prevent heat buildup.

C. EMI/EMC Considerations

Shielding: Incorporate shielding techniques to minimize electromagnetic interference.

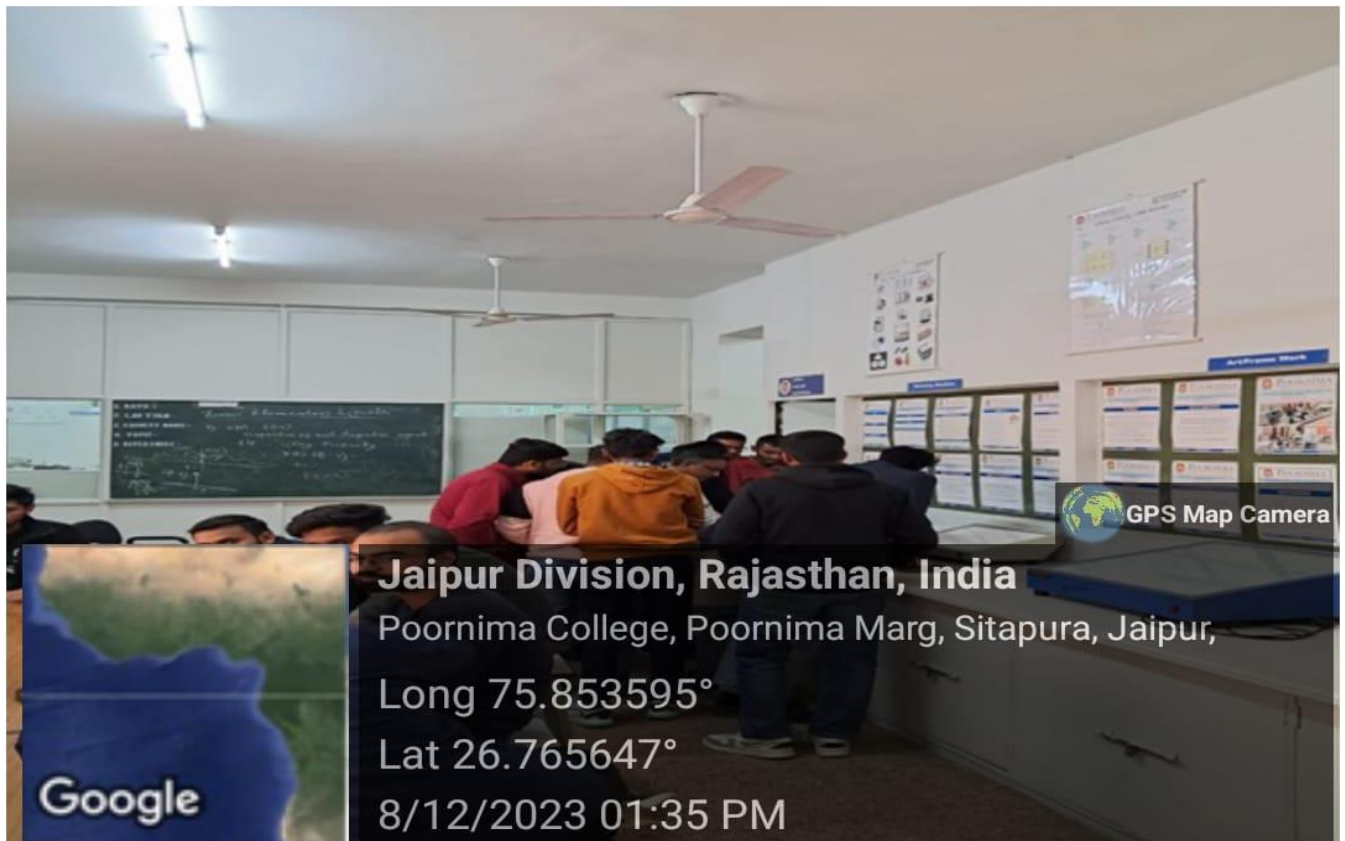
Grounding: Implement proper grounding practices to reduce noise and improve EMC performance.


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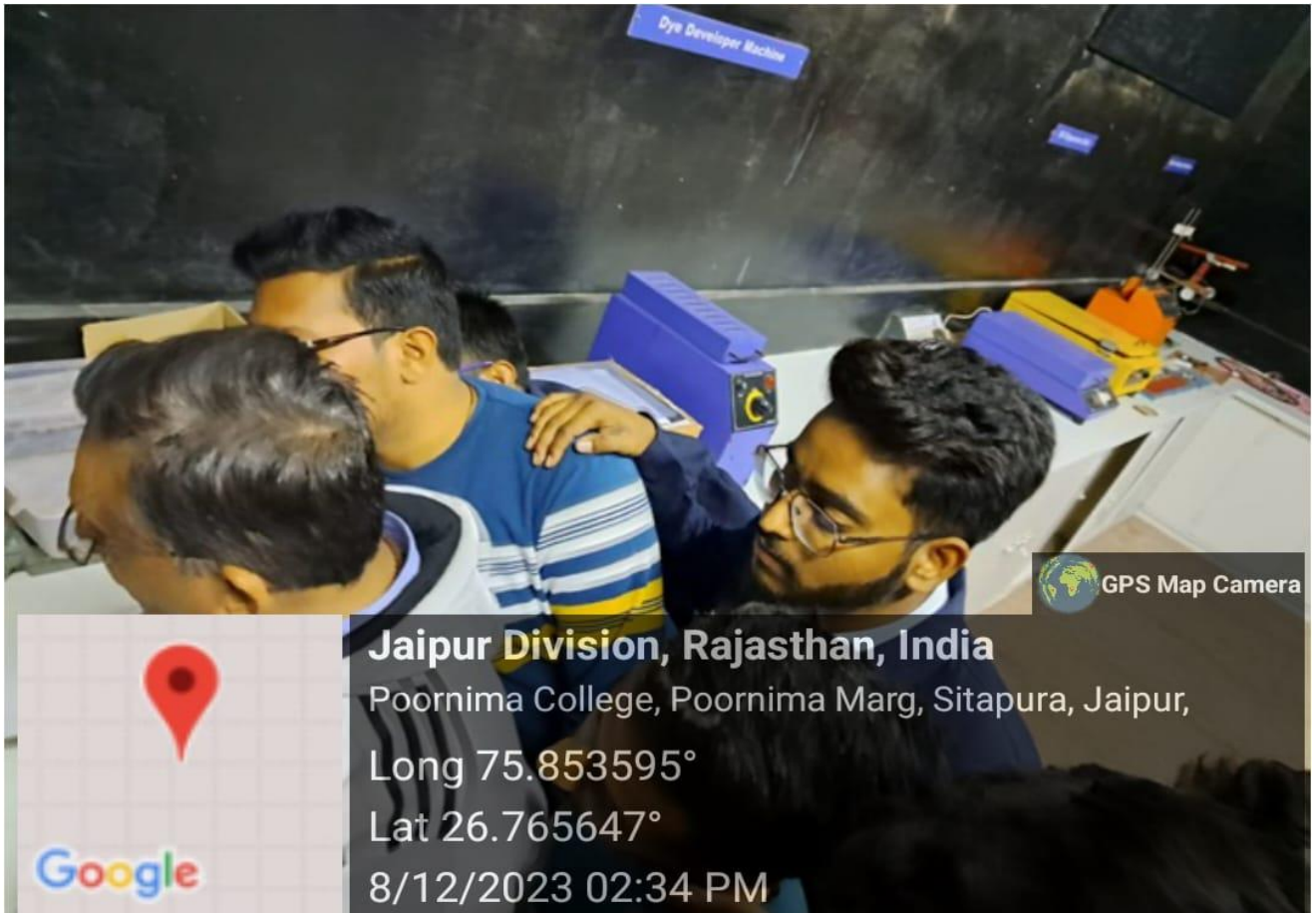
GLIMPSES:











PARTICIPANTS DETAILS:

Poornima College of Engineering
Department of Electronics & Communication
Session 2023-24
Participant Sheet

Date- 8 December, 2023

EVENT : Workshop on PCB Designing

Sr. No	Name of the Student	Enrolment ID
1	ABHINANDAN BHATT	PCE22EC002
2	ABHISHEK KUMAR	PCE22EC003
3	ADARSH KUMAR SINGH	PCE22EC001
4	ADITYA SOMRA	PCE22EC004
5	ADITYA TOSHNIWAL	PCE22EC005
6	AJAY KUMAR SONI	PCE22EC006
7	ANIL BAIRWA	PCE22EC025
8	CHAUHAN NITIN RAJESH SINGH	PCE22EC026
9	CHIRAG JAIN	PCE22EC007
10	DEEPAK DEWATWAL	PCE22EC008
11	DEV SAINI	PCE22EC009
12	DEVENDRA KUMAR SUTHAR	PCE22EC010
13	DHARMRAJ KUMAR	PCE22EC011
14	DIVYAM SETHI	PCE22EC027
15	GAURAV SHARMA	PCE22EC012
16	GAUTAM SAIN	PCE22EC013
17	HANSIKA SAXENA	PCE22EC014
18	HARDIK AJMERA	PCE22EC015
19	KARTIK JAIN	PCE22EC016
20	KRISHAN KANT JANGID	PCE22EC017
21	KUNAL SUHANSIYA	PCE22EC028
22	LOKESH SINGH	PCE22EC018
23	MADHUSUDHAN SINGH	PCE22EC019
24	MOHD SAHIL KHAN	PCE22EC020
25	MS ANUSHKA CHHIPA	PCE22EC021
26	MS SHRUTI AGARWAL	PCE22EC022
27	MUKUL	PCE22EC023
28	RAJWANT	PCE22EC029
29	SHREYA JAIN	PCE22EC024
30	TUSHAR TAILOR	PCE22EC030
31	VINAY PRATAP SINGH MEENA	PCE22EC031
32	DIVANSH JANGID	PCE22EC032
33	ANSHUL KUMAR JAIN	PCE22EC033

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35	ASHISH KUMAR .	PCE20EC003
36	BHANU SHARMA	PCE20EC004
37	MEENA ASHWINI SEETARAM	PCE20EC005
38	NIKHIL CHOUHAN	PCE20EC008
39	NISHANT SINGH	PCE20EC702
40	PARIHAR HITESH RAMESH	PCE20EC011
41	SURAJ CHAUHAN	PCE20EC012
42	SUSHANK KUMAR	PCE20EC009
43	TARUN VERMA	PCE20EC010
44	TRIPTI JAIN	PCE20EC006
45	APARNA S KUMAR	PCE21EC800
46	ABHAY KHANDELWAL	PCE21EC001
47	ABHISHEK SINGH RAJAWAT	PCE21EC002
48	AVINASH KUMAR .	PCE21EC003
49	BHAWANA SAHANI	PCE21EC004
50	DEVVRATH SINGH	PCE21EC005
51	HARSH KUMAR	PCE21EC006
52	KAMLESH .KUMAWAT	PCE21EC007
53	KASHMI CHOUDHARY	PCE21EC510
54	LOKESH KUMAR .DHAKER	PCE21EC009
55	LOKESH KUMAWAT	PCE21EC010
56	MD ARIF ALAM	PCE21EC023
57	MOHD DAUD QURESHI	PCE21EC011
58	PRIYANSH BAIRWA	PCE21EC012
59	PRIYANSHU SONI	PCE21EC013
60	RAGINI KUMARI	PCE21EC024
61	RAJEEV KUMAR BAG	PCE21EC014
62	RAJENDRA SOLANKI	PCE21EC015
63	RAMAKANT SHARMA	PCE21EC016
64	SAHIL ARORA	PCE21EC017
65	TAMNNA AMERI	PCE21EC020
66	YASH VARDHAN SINGH SOLANKI	PCE21EC022


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ATTENDANCE SHEET

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Attendance Sheet


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5	ADITYA TOSHNIWAL	PCE22EC005	Aditya
6	AJAY KUMAR SONI	PCE22EC006	Ajay
7	ANIL BAIRWA	PCE22EC025	Anil
8	CHAUHAN NITIN RAJESH SINGH	PCE22EC026	Nitin
9	CHIRAG JAIN	PCE22EC007	Chirag
10	DEEPAK DEWATWAL	PCE22EC008	Deepak
11	DEV SAINI	PCE22EC009	Dev
12	DEVENDRA KUMAR SUTHAR	PCE22EC010	Devendra
13	DHARMRAJ KUMAR	PCE22EC011	Dharmraj
14	DIVYAM SETHI	PCE22EC027	Divyam
15	GAURAV SHARMA	PCE22EC012	Gaurav
16	GAUTAM SAIN	PCE22EC013	Gautam
17	HANSIKA SAXENA	PCE22EC014	Hansika
18	HARDIK AJMERA	PCE22EC015	Hardik
19	KARTIK JAIN	PCE22EC016	Kartik
20	KRISHAN KANT JANGID	PCE22EC017	Krishan
21	KUNAL SUHANSIYA	PCE22EC028	Kunal
22	LOKESH SINGH	PCE22EC018	Lokesh
23	MADHUSUDHAN SINGH	PCE22EC019	Madhusudhan
24	MOHD SAHIL KHAN	PCE22EC020	Mohd Sahil
25	MS ANUSHKA CHHIPA	PCE22EC021	Anushka
26	MS SHRUTI AGARWAL	PCE22EC022	Shruti
27	MUKUL	PCE22EC023	Mukul
28	RAJWANT	PCE22EC029	Rajwant
29	SHREYA JAIN	PCE22EC024	Shreya
30	TUSHAR TAILOR	PCE22EC030	Tushar
31	VINAY PRATAP SINGH MEENA	PCE22EC031	Vinay
32	DIVANSH JANGID	PCE23EC800	Divansh
33	ANSHUL KUMAR JAIN	PCE20EC001	Anshul
34	ANUSHKA PATEL	PCE20EC002	Anushka
35	ASHISH KUMAR	PCE20EC003	Ashish
36	BHANU SHARMA	PCE20EC004	Bhanu
37	MEENA ASHWINI SEETARAM	PCE20EC005	Ashwini
38	NIKHIL CHOUHAN	PCE20EC008	Nikhil
39	NISHANT SINGH	PCE20EC702	Nishant

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41	SURAJ CHAUHAN	PCE20EC012	Suraj
42	SUSHANK KUMAR	PCE20EC009	Sushank
43	TARUN VERMA	PCE20EC010	Tarun
44	TRIPTI JAIN	PCE20EC006	Tripti
45	APARNA S KUMAR	PCE21EC800	Aparna
46	ABHAY KHANDELWAL	PCE21EC001	Abhay
47	ABHISHEK SINGH RAJAWAT	PCE21EC002	Abhishek
48	AVINASH KUMAR	PCE21EC003	Avinash
49	BHAWANA SAHANI	PCE21EC004	Bhawana
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51	HARSH KUMAR	PCE21EC006	Harsh
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66	YASH VARDHAN SINGH SOLANKI	PCE21EC022	Yash


 Dr. Payal Bansal
 Name & Signature
 Event Coordinatore


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FEEDBACK:

Content of the workshop is rated as:

- Excellent by 94.58% of participants
- Good by 6.19% of participants

Management/ Administration of the workshop is rated as:

- Excellent by 96.48% of participants
- Good by 3.52% of participants

Overall Workshop is rated as:

- Excellent by 95.58% of participants
- Good by 4.42% of participants


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