MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(Deemed University)

NAAC Accredited with A++ Grade

DEPARTMENT OF ELECTRONICS ENGINEERING

Report

Title:- Hands-on Workshop on "**PCB Designing**"

Date:- 17th Aug 2024 (Saturday),

Schedule:- 11:00AM– 01:00PM

Resource Persons:-

Dr. Vikas Mahor,

Objective of workshop:

- To impart the practical knowledge about different types of Robots.
- The main objective of the online workshop was to brief the students about the basics of Robotics especially manipulator and its latest industrial applications.

Objectives

The primary objective of the hands-on workshop on "PCB Designing" was to equip students with practical skills in designing printed circuit boards (PCBs) using the EasyEDA online platform. The workshop aimed to provide participants with a comprehensive understanding of the PCB design process, from schematic creation to final layout, ensuring they can apply these skills in real-world electronic projects. Additionally, the workshop sought to enhance students' familiarity with industry-standard tools and techniques, preparing them for future academic and professional challenges in the field of electronics.

Workshop Overview

On 17/08/2024, the workshop was conducted with Dr. Vikas Mahor as the resource person. A total of 31 students from the Electronics branch attended the session.

Introduction to PCB Designing

The workshop began with an introduction to the fundamentals of PCB design. We explained the significance of PCBs in electronic devices and their applications across different industries, such as consumer electronics, automotive, aerospace, and industrial equipment. This foundational knowledge set the stage for the more detailed, hands-on activities that followed.

Overview of EasyEDA Platform

Following the introduction, we provided a detailed overview of the EasyEDA platform. He explained how this tool simplifies the PCB design process with its intuitive interface and extensive library of components. Participants were guided through the registration process

and the basic functionalities of EasyEDA, including schematic capture, PCB layout, and simulation features.

Hands-on Session: Schematic Design

The hands-on portion of the workshop began with the design of a simple circuit schematic. We led the students through the step-by-step process of selecting components, placing them on the schematic, and wiring them together using EasyEDA. He emphasized the importance of accurate schematic design as the foundation for a successful PCB layout. The students actively engaged in this process, gaining practical experience in schematic design.

PCB Layout and Design Techniques

With the schematic design completed, the workshop transitioned to PCB layout. We demonstrated how to convert the schematic into a PCB layout, covering essential topics such as layer selection, trace routing, and component placement. He shared best practices for optimizing PCB designs, including minimizing signal interference and managing thermal considerations, ensuring that students understood how to create functional and reliable PCBs.

Design Rule Check (DRC) and Simulation

In the latter part of the workshop, We introduced the Design Rule Check (DRC) feature in EasyEDA, which helps designers identify potential issues before fabrication. He explained how to run a DRC and interpret the results, ensuring that the PCB meets all necessary design specifications. The students also explored the simulation tools within EasyEDA, allowing them to verify their designs' functionality virtually before proceeding to manufacturing.

Q&A Session

The workshop concluded with an interactive Q&A session. Students asked questions related to their designs and the PCB design process, with We providing detailed explanations and insights into more advanced techniques. This session allowed participants to clarify any doubts and deepen their understanding of PCB design.

Outcomes

The workshop successfully achieved its objectives, providing students with practical experience in PCB design using the EasyEDA platform. Participants gained a strong understanding of the entire PCB design process, from schematic creation to layout and design verification. They developed skills that are directly applicable to both their academic projects and future careers in electronics. The positive feedback from attendees highlighted the workshop's effectiveness in bridging the gap between theoretical learning and practical application. Overall, the workshop empowered students with the tools and knowledge necessary to confidently undertake PCB design tasks in their future endeavors.

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Number of students registered the workshop: - 20 (List attached)

S. No.	Name of Student	Enrolment No.
1.	Ratnesh Asati	0901EC221087
2.	Jatin Guru	0901EC221046
3.	Sourabh Singh	0901EC231130
4.	VIPENDRA BAGHEL	0901EC221153
5.	SURYANSH DIXIT	0901EC221130
6.	Siddharth sharma	0901EC221121
7.	Sanjay Bisariya	0901EC221105
8.	Neetesh Sharma	0901EC221067
9.	Mayank Singh Rajput	0901EC221061
10.	Somesh Patel	0901ec221072
11.	Ankush Kumar	0901EC221012
12.	Yash Uchhasare	0901ec221156
13.	Prashant Pathak	0901EC221076
14.	TANISHQ AGRAWAL	0901EC221137
15.	Amar Kumar Singh	0901EC231011
16.	KHUSHI JAIN	0901EC221050
17.	Akansha	0901EC221006
18.	Ayush saxena	0901EC231030
19.	Kumari anuradha	0901EC231068
20.	Vidhi Khanna	0901EC221151

Enclosure-

1. Photos

Dr. Vikas Mahor

Coordinator,
Assistant Professor

Dr. Rahul Dubey

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Photo during workshop