



# POORNIMA

INSTITUTE OF ENGINEERING & TECHNOLOGY

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

## Faculty Development Program

on

## PCB Design, Soldering, Assembly, and, Enclosure Development using a PCB Milling machine, Laser Cutter, and 3D Printer.

**AICTE**  
Approved by AICTE

**IDEA Lab**

**POORNIMA**  
INSTITUTE OF ENGINEERING & TECHNOLOGY  
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**Faculty Development Program on  
PCB Design, Soldering, Assembly, and Enclosure Development  
Using a PCB Milling Machine, Laser Cutter, and 3D Printer**

**April 19-21, 2022** 9.00 AM-04.00 PM Venue: Idea Lab, PIET

In Association with

**SINGGRID**

**Arun Kumar**  
Co-founder Singgrid, Delhi

**Prof. (Dr.) Dinesh Goyal**  
Principal & Director,  
Poornima Institute of Engineering & Technology  
Chief Mentor, PIET-AICTE, IDEA lab

**Satish Kumar**  
Production Head Singgrid, Delhi

**Udit Mamodiya**  
Assistant Professor,  
Department of Electrical Engineering,  
Co-coordinator, PIET-AICTE, IDEA lab

**Naman Puri**  
Field Application Engineer  
Singgrid, Delhi

RSVP: **Udit Mamodiya** • ☎ : +91-9694802324 • ✉ : [udit.mamodiya@poornima.org](mailto:udit.mamodiya@poornima.org)

# **DAY 1**

DATE: - 19 APRIL, 2022

TIME: - 9:00 AM TO 4:00 AM

VENUE: - Idea Lab, PIET

Participants: - 40

The session started in BB31-Seminar Hall with Mr. Udit Mamodiya (CO-Coordinator, PIET-AICTE, Idea lab) as HOST with a “Ganesh Vandana” followed by lamp lighting by Dr. Dinesh Goyal (Principal & Director, PIET), Mr. Arun Kumar (Co-founder SincGrid, Delhi), Dr. Sama Jain (HOD), and inGrid team members. Followed by memento’s distribution Made in Idea Lab itself using Laser cutting machine to Sink Grid team.

Then,

Dinesh sir enlightened us all with his wise words and told us all the solo motive and necessity of this FDP. He also added, few words on the working experience with sinc grid team and fellow idea lab teammates.

Then, Arun sir took over and talked about the basic scheduled time table of this Three-Day FDP with all the participants.

Then,

All the participants were headed to the newly-built PIET-AICTE Idea lab with Arun sir. Furthermore, Day 1 was filled with software centric sessions under the guidance of Arun sir

Meanwhile, The Idea lab’s team was preparing for the next 2 days of hands-on practice.

Day 1 mainly focused on:-

## **PCB DESIGNING**

- Hands on Eagle CAD software
- Schematic designing
- PCB designing
- Converting PCB design for PCB router
- Toner Transfer Method Discussion
- Illustration on toner transfer method

## **DAY 2**

DATE: - 20 APRIL, 2022

TIME: - 9:00 AM TO 4:00 AM

VENUE: - Idea Lab, PIET

Participants: - 40

The FDP resumed with Arun sir resuming the remaining training of Eagle CAD software and asked for the Home assignment he asked the Faculty's to do.

But That was just for the start and Main objective of Day 2 was PCB Soldering and Assembly

And hence the topics which were covered in the entire Day 2 were :-

- PCB Soldering
- PCB testing
- Enclosure Development
- Developing PCB enclosure
- Key steps for PCB enclosure design
- Basics of 3D modeling
- 3D Modelling to 3D Printing
- Key considerations for 3D printing

The main outcome for this whole FDP was to make a memento of an idea lab using all kinds of instruments and till now pcb part was done now moving towards Day 3.

## **DAY 3**

DATE: - 21 APRIL, 2022

TIME: - 9:00 AM TO 4:00 AM

VENUE: - Idea Lab, PIET

Participants: - 40

Now till day 3 faculty knew how to make the inner part of the product but didn't know about the enclosure so day 3 mainly focused on Enclosure Development.

It required 3 to 4 machines and a black ipa spray for enclosure making

Day 1 and Day 2 was leaded by Arun sir but Day 3 was leaded by Satish sir and Naman Sir

The Enclosure development consisted of :-

- Enclosure development using Laser cutting
- Experimental PCB Fabrication using Laser Cutting
- Discussion on Electronic System Design and Manufacturing
- Open House for queries and other related topics

Machines/Tools Covered

- Laser Cutter
- PCB Router
- 3D Printer
- Solder station
- Multimeter

Key Outcomes of the Faculty Development Programme

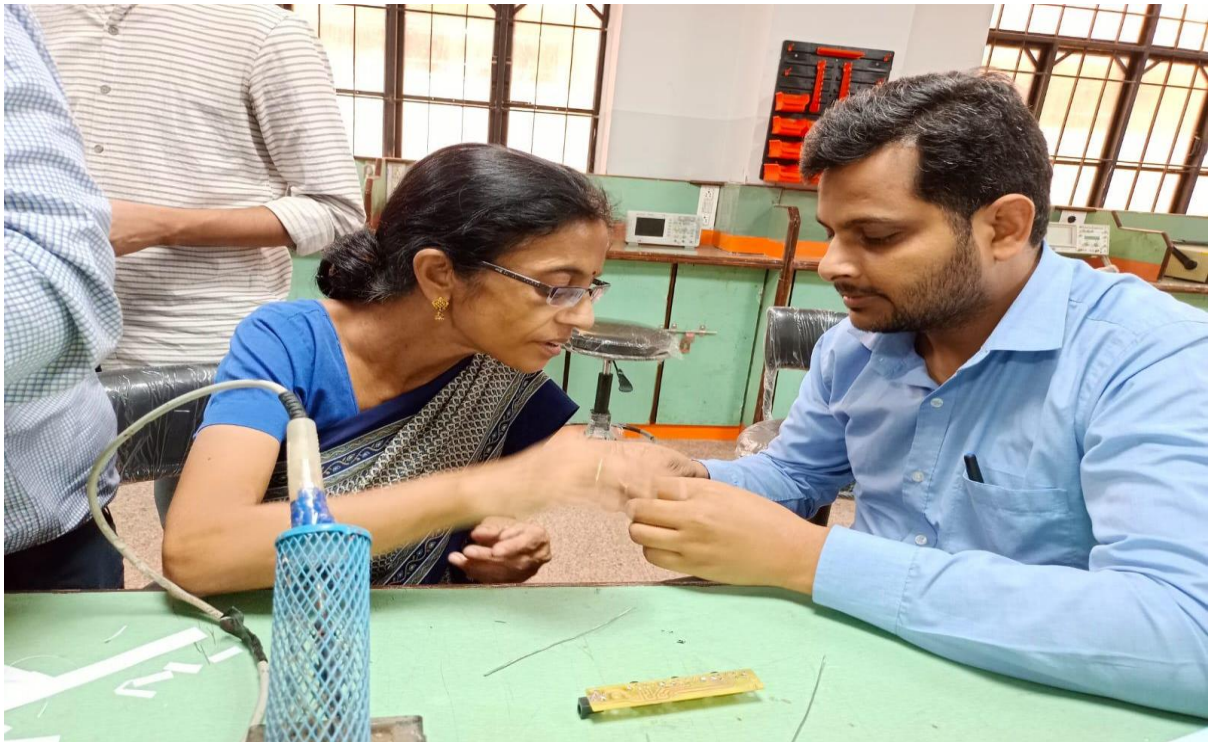
- The programme is aimed at providing hands-on experience on various tools, machines and equipment.
- Working electronic prototype as takeaway.

## **SNAPSHOTS**















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Poornima Marg, Sitapura, Jaipur, Rajasthan  
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