



NEW HORIZON COLLEGE OF ENGINEERING

Autonomous College, Permanently Affiliated to Visvesvaraya Technological University, Belagavi
Approved by AICTE & UGC, Accredited by NAAC with 'A' Grade, Accredited by NBA



A Report

AICTE IDEA Lab – Skill Development Program

A Three days Skill Development Program was successfully organized at New Horizon College of Engineering under the initiative of the AICTE IDEA LAB and the Department of Research and Development.

Chief Mentor : Dr.Manjunatha, Principal

Faculty Coordinator : Dr.Revathi V, Dean R&D

Faculty Co Coordinator : Dr.A.Sujin Jose, Associate Professor- R&D/Mech

Duration : 28 July 2025 to 30 July 2025

Participants: Lab Instructor of New Horizon College Of Engineering

Trainers: Mr. Sudharson, Mr. Rahul, Mr. Shankar, and Mr. Vasanth of Enthu Technology Solutions India PVT LTD.

Objectives

- The objective of this program is to train the lab instructors to acquainted with Laser printing machine, vinyl cutting machine and PCB Mat machine for making prototype of the visualized products
- Provide hands-on experience with prototyping Machines and Tools
- Enhance Employability and Industry Readiness

Overview

The trainers provided in-depth training on the design and operation of three key prototyping machines: the PCB Mat Machine, the Heavy Duty Laser Cutting Machine, and the Vinyl Cutting Machine. Each session was carefully structured to cover both the theoretical aspects and practical applications of these advanced fabrication tools. The primary aim was to equip lab instructors with the necessary skills and knowledge to effectively operate the equipment available in the AICTE IDEA Lab.

Day1(28 July 2025) : PCB Designing and Prototype of PCB

Venue : IDEA Lab

Trainer : Sudharson

The session began with a detailed **introduction to the PCB Mat Machine** and its associated software tools, including **Eager, Copper Cam, Auto Leveller, and Mach3 Mill**. The trainer provided an overview of the machine's components, working principles, and safety guidelines, ensuring that participants understood the fundamental operations involved in PCB prototyping. Following the introduction, participants were guided through the **PCB design process using Eager software**, where they learned how to create schematic layouts and convert them into board designs. These designs were then exported and processed through **Copper Cam software** to generate the corresponding **G-Code files**, which are essential for driving the milling machine.

Once the G-Code was prepared, participants were introduced to the **Auto Leveller software**, which is used to adjust the depth of the milling tool according to surface variations, ensuring precise engraving. Finally, the **Mach3 Mill software** was used to operate the PCB Mate Machine and execute the milling process. Under the trainer's supervision, participants successfully created **functional PCB prototypes**, gaining valuable hands-on experience in every stage of the prototyping workflow—from design to fabrication.



Day2 (29 July 2025) : Introduction to Heavy Duty Laser Printing Machine

Venue : IDEA Lab

Trainer : Sudharson

The trainers began the session by providing a thorough **introduction to the operation of the Heavy Duty Laser Printing Machine** along with the **RD Works software**, which is integral to controlling the laser cutting and engraving process. Participants were familiarized with the machine's hardware components, safety protocols, and maintenance procedures to ensure smooth and safe operation. The trainer then demonstrated how to navigate the RD Works

software, covering essential features such as importing designs, setting cutting parameters, adjusting laser power and speed, and previewing job simulations.

Following the demonstration, participants were encouraged to **create their own unique designs using the RD Works software**, applying the skills they had learned to customize shapes, texts, and patterns suited to their projects. Once the designs were finalized, the lab instructors took turns operating the laser machine, learning to correctly position the materials and execute the cutting or engraving processes. Through this hands-on experience, participants successfully produced **precise physical models of their digital designs**, reinforcing their understanding of the entire workflow from concept to prototype. This practical training not only enhanced their technical capabilities but also prepared them to independently utilize laser technology for various prototyping and fabrication needs.



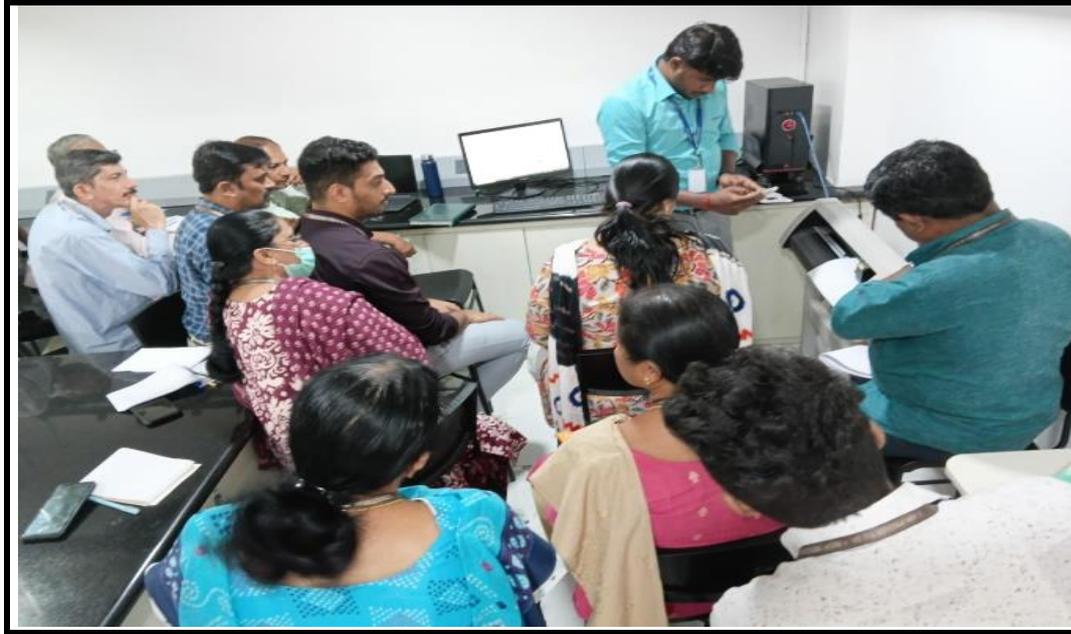
Day3 (30 July 2025) : Introduction to Vinyl Cutting Machine

Venue : IDEA Lab

Trainer : Sudharson

This session began with a comprehensive introduction to the Vinyl Cutting Machine and the associated Flexi_10 design software. The trainer explained the technical parameters of the machine, including cutting speed, blade alignment, and material compatibility. A detailed walkthrough of the Flexi_10 software interface was provided, highlighting important toolbars, design features, and file preparation techniques. Participants were shown how to import vector images, create custom designs, and prepare them for cutting using appropriate settings.

Following the software training, the session moved on to the hands-on operation of the vinyl cutting machine. Participants learned the step-by-step process of machine setup, including loading vinyl sheets, setting origin points, and executing cutting commands. Under the guidance of the trainers, each participant created and operated their own design, observing how their digital concepts were translated into precise physical prototypes. This practical exposure not only enhanced their technical skills but also built confidence in handling advanced fabrication tools independently.



Outcomes :

- Participants gained hands-on experience in operating advanced prototyping machines such as the PCB Mat Machine, Heavy Duty Laser Cutting Machine, and Vinyl Cutting Machine.
- Lab instructors became familiar with industry-relevant software tools including Eager, Copper Cam, Mach3 Mill, RD Works, and Flexi_10, enhancing their technical proficiency.
- The training enabled participants to independently design and develop prototypes, improving their confidence and readiness to support students and faculty in the AICTE IDEA Lab.
- The program successfully promoted skill development and industry-oriented training, aligning with the objectives of the AICTE IDEA Lab initiative.
- Trainers from Enthi Technology Solutions India Pvt. Ltd. effectively guided the participants, ensuring practical knowledge transfer and active engagement throughout the sessions.

Conclusion

The three-day Skill Development Program organized at New Horizon College of Engineering under the AICTE IDEA Lab initiative was a resounding success. It provided valuable technical training to lab instructors, equipping them with the knowledge and skills to operate key prototyping equipment. The initiative not only strengthened the institution's research and development capabilities but also enhanced the participants' employability and industry readiness. Such programs play a vital role in bridging the gap between academic infrastructure and practical application, thereby fostering innovation and technical excellence within the institution.