



PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY

(An Autonomous Institute, Approved by AICTE, New Delhi & Affiliated to Kurukshetra University, Kurukshetra)

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



SDG 9 Industry, Innovation and Infrastructure

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



Panipat Institute of Engineering and Technology (PIET) is at the forefront of promoting innovation, strengthening industrial partnerships, and fostering sustainable infrastructure development, in alignment with **SDG 9: Industry, Innovation, and Infrastructure**. The institute firmly believes that resilient infrastructure, inclusive industrial growth, and technological advancements are the cornerstones of a progressive and equitable society.

PIET has taken significant strides in nurturing a culture of innovation by establishing cutting-edge research facilities, encouraging collaborative projects, and fostering entrepreneurship through incubation centers. By bridging the gap between academia and industry, the institute provides students and faculty with opportunities to work on real-world challenges, equipping them with the knowledge and skills to contribute meaningfully to global advancements.

The institute has also invested in modernizing its infrastructure with smart technologies, eco-friendly practices, and renewable energy systems, ensuring a sustainable and efficient campus environment. Additionally, PIET conducts skill development programs, technical training, and workshops to prepare students for the demands of the evolving industrial landscape.

Through these concerted efforts, PIET not only empowers its stakeholders to drive innovation and growth but also contributes to building a sustainable future by supporting the development of resilient infrastructure and inclusive industries.

9.1. PIET innovations/ Initiatives

9.1.1 AICTE IDEA Lab:

The AICTE Idea Lab has been set up on campus to pool the ideas of students and test their feasibility. It provides the basic facilities required to develop a lab model of the idea. Students & faculty getting environment to support their innovative ideas for creating prototypes through different facilities as makers labs fitted with 3D printers, Laser Cutters, PCB designing & manufacturing facilities.

Table 1 List of Projects developed under IDEA Lab

S.NO.	Project Name	Team Members	Description
1	Aeroponic Tower	Eklavya, Vansh, Unnati, Lovish, Ujjwal, Arpita	An IOT and AI enabled device capable of growing any crop or vegetation by itself without any human attention
2	Fingerprint Attendance	Lovish, Eklavya, Vansh	Biometric Attendance system
3	Gyroscopic Control car	Mr. Ankur, Mr. Nikhil	Car controlled through your gestures of hands
4	Dog Feeder	Arnav, Aman, Japjyot, Tisha	An IOT device used to automatically feeds the pets
5	Wheel Chair	Anshumaan, Anubhuti, Abhay	Auto controlled wheelchair
6	Air Freshner	Anshumaan	IOT based Room freshner
7	Speaker	Shiva	Smart speaker
8	Traffic Light	Shiva, Kartik	Emergency vehicles pass management system
9	IOT based Robot	Mr. Ankur	IOT based Robot
10	Eiffel Tower	Gurpreet, Shruti, Sukhmeet	Application of laser cutting
11	Serving Robot	Anshuman, Unnati, Parth Kundu	IOT Based Robot
12	Smart Home	Shiva, Kartik	IOT based Smart home
13	Robotic Hand	Eklavya	App based Robotic Hand



Gyroscopic Control Car



IOT based Robot



Serving Robot



Mecanum Wheel Robots

Skill Development Workshops: Regular workshops, seminars, and training sessions are conducted to upskill students and faculty in emerging technologies and trends. Ideation workshops are organised in collaboration with AICTE.

Activities	Date	Skills/ Technologies Covered
6 Days Ideation Workshop- I	13- 18 th Dec' 2021	Eagle, Arduino, CAD
6 Days Ideation Workshop- II	17 – 22 nd Jan' 2022	Eagle, Arduino, CAD
6 Days Ideation Workshop- III	9 – 14 th May'2022	Embedded System and IOT
6 Days Ideation Workshop- IV	11- 16 th Apr'2023	Practical applications of their skills in Eagle, Arduino, CAD
6 Days Ideation Workshop- V	14- 19 th Nov'2023	Smart Manufacturing & IOT
6 Days Ideation Workshop- V	3-8 th Apr'2024	Fabrication techniques, 3D Printing, 3D Scanning, Laser cutting, embedded systems and IOT.

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IDEALab

INSTITUTION'S INNOVATION COUNCIL
(Ministry of HRD Institute)

AICTE
(All India Council of Technical Education)

PIET IDEA Lab
Presents
PCB DESIGNING AND FABRICATION USING EAGLE SOFTWARE
TRAINERS

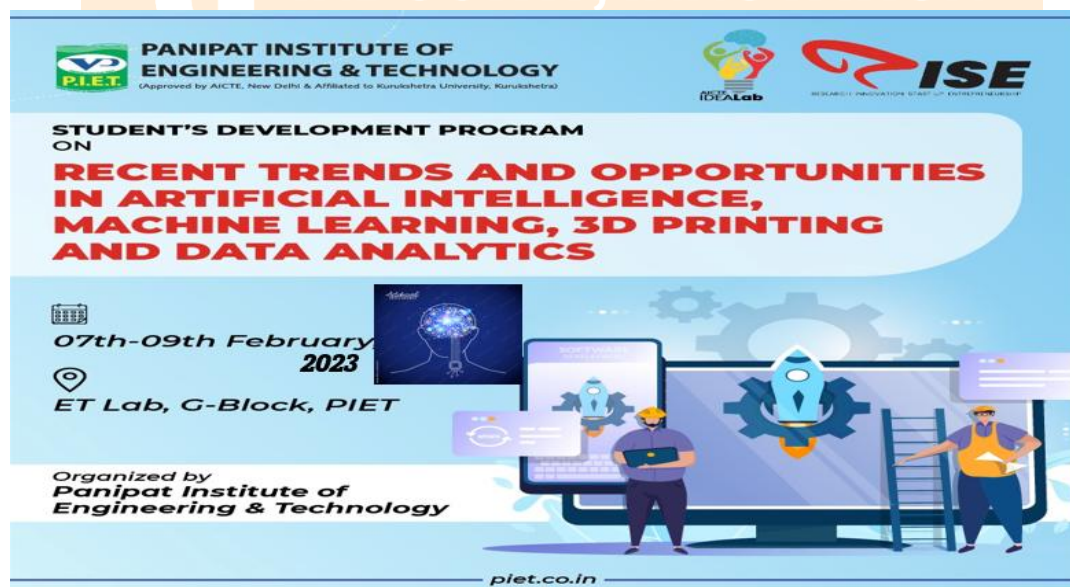
Mr. Rajeev Dhanda **Mr. Ishant Kumar**

18-22 APRIL, 2022
VENUE: PIET IDEA LAB
PARTICIPANTS: 3RD YEAR ECE STUDENTS

Brochure of Workshop I



Glimpses of Workshop I



Brochure of Workshop III



Glimpses of Workshop III

Faculty development Program:

To enhance the competencies of its educators, PIET organizes Faculty Development Programs focusing on emerging technologies and innovative teaching methodologies. These programs cover a wide range of topics, including digital system design, robotics, automation, the Internet of Things (IoT), and sustainability practices. For instance, an FDP was conducted on digital system design using Xilinx Vivado, with hands-on implementation on the PYNQ Z2 board. Another FDP, in collaboration with MSME Karnal, focused on the application of artificial intelligence in industrial management.



Glimpses of FDP

5-Day FDP

FACULTY DEVELOPMENT PROGRAMME

Sponsored by
AICTE IDEA LAB
 and
MSME Karnal, Haryana, Govt. of India

On
Artificial Intelligence in Industrial Management

JOIN US

21st to 26th December, 2022

P.I.E.T - Panipat Institute of Engineering and Technology, Samalkha - 132102
 G-Block Ground Floor
Department of Computer Science and Engineering (ET)



<https://forms.gle/WN8o9qpx1x1Kdq77>

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INSTITUTION'S INNOVATION COUNCIL
(Approved by Government of Haryana)

FDP

(Faculty Development Programme)

Conceptualization of IDEA to PROTOTYPE using 3-D Printing, 3-D Scanning, Lazer Cutting, CNC Router and IoT.

5th - 9th February 2024

ORGANIZED BY
 Department of CSE (AIML)

SUPPORTED BY
 AICTE IDEA LAB, PIET

RESOURCE PERSONS

Dr. Anju Gandhi
Co-ordinator, IDEA LAB

Mr. Ankur
IDEA LAB Guru

Mr. Anshumaan
Lab Ambassador

Dr. Sunil Dhull
Co-ordinator, IDEA LAB

Mr. Nikhil
IDEA LAB Guru

Mr. Shubham
Lab Ambassador

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PIET STUDENT BRANCH

INSTITUTION'S INNOVATION COUNCIL
(Approved by Government of Haryana)

SUSTAINABLE DEVELOPMENT GOALS

FDP ON Artificial Neural Networks: Fundamentals to Implementation

Date: 1 Aug to 5 Aug, 2022
Time: 10:00 am to 12:00 pm / 2:00 pm to 4:00 pm

KEY HIGHLIGHTS

- Fundamentals of Artificial Neural Networks
- Layered Architecture of Neural Network
- Training of Artificial Neural Networks.
- Implementation of ANN.
- Deep Learning and its implementation

Venue: E-301 Lab, PIET

EVENT CO-ORDINATORS

Dr. Stuti (91+ 8168409943, stutimehla.cse@piet.co.in)
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CONVENER

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CO-CONVENER

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Dr. Alankrita Aggarwal (91+ 9996034302 alankrita.cse@piet.co.in)

Organized by: AICTE IDEA LAB & DEPARTMENT OF COMPUTER AND ENGINEERING.



Dr. Vikas Khullar
 Associate Professor (DCSE),
 Chitkara University, Rajpura, Punjab

WHO SHOULD ATTEND:
 Faculty members, Students and research scholars working in the area of AI -ML & AI-DS



9 AND INFRASTRUCTURE

Glimpses of FDP

An **Open Day for school students** is an annual event at PIET. Here are a few highlights from the 2023 - 2024 edition.



Glimpses of Open day for School Students

9.1.2 Institute Innovation Council (IIC)

The institute has successfully established the institute innovation council (IIC) in the year 2018-19 as per the norms and directives of MHRD Innovation Cell, to systematically foster the culture of innovation in the institute. IICs are responsible for conducting the activities as per activity calendar provided by MHRD Innovation Cell. PIET has bagged the star rating certificate for IIC.



IIC Certificates

LIST OF PATENTS

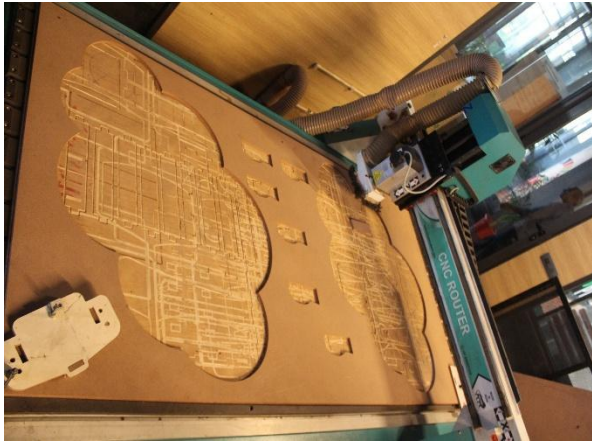
- A Voice Command Operated, Light Fidelity (Li-Fi) linked, Switching Assembly for Activating a Plurality of Appliances and Working Method Thereof.
- A Li-Fi Enabled Wireless Controlled Robotic Assembly.
- A Li-Fi Based Fingerprint Operated Wireless Locking Assembly.
- A Li-Fi Based Wireless Virtual Reality Headset Assembly.
- A Li-Fi Based Wireless Conferencing Assembly for Mobile Phones.
- Augmented Reality Enabled Li-Fi Based Device Switching Assembly.
- A Light-Fidelity Linked Switching Assembly for Activating a Plurality of Appliances and Working Method Thereof.

LIST OF PATENTS

- A Home Automated System Based on A Light Fidelity (Li-Fi) Linked Internet of Things(IoT)
- An Appratus for Providing A Wireless Ethernet Connection Over Light Fidelity (Li-Fi)
- A Light Fidelity Based Byte Oriented Parallel Wireless Asynchronous Data Transfer System.
- A Light Fidelity (Li-Fi) Based Parallel Wireless Synchronous Data Transfer System.
- A Light Fidelity Enabled , Wireless Camera Based Face Recognition System.
- A Light Fidelity Based, Single Laser, Stereo Audio and Video Transmission System Using Frequency Division Multiplexing(FDM)
- A Light Fidelity (Li-Fi)Based Single Laser Stereo Audio Transmission System using Frequency Division Multiplexing.

9.3. Infrastructure

The AICTE IDEA lab provides cutting-edge tools and technologies, including advanced robotics kits, IoT devices, 3D printers, and prototyping equipment, enabling students and researchers to work on innovative projects. With a collaborative workspace, high-speed internet, and expert mentorship, the lab serves as a hub for brainstorming, designing, and implementing solutions that address real-world challenges



CNC ROUTER



LASER CUTTING MACHINE



LASER CUTTING MACHINE



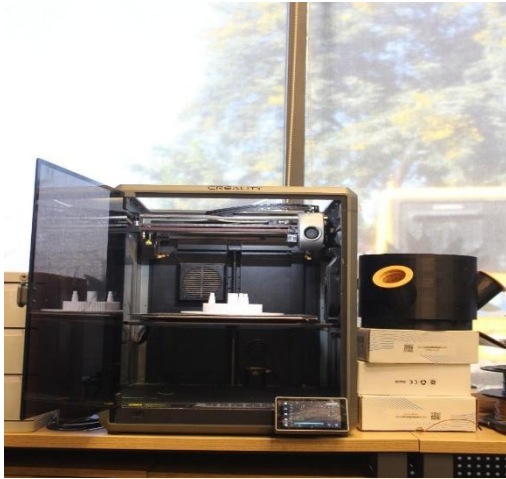
Vinyl cutter



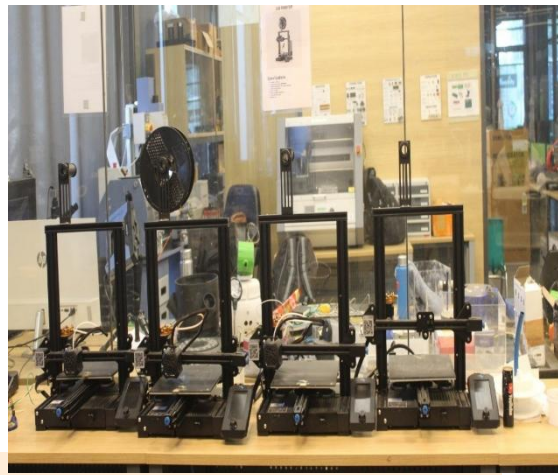
*ANYCUBIC PHOTON MONO X 6K RESIN
3D PRINTER*



COMPUTER SYSTEM



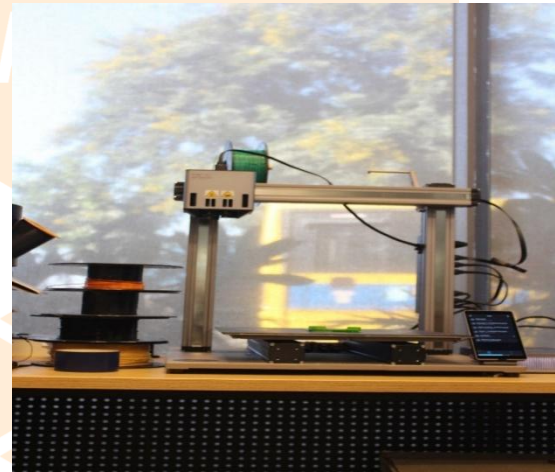
HIGH SPEED 3D PRINTER



3D PRINTERS



3D SCANNER



3D PRINTER



CNC AND WOOD LATHE MACHINE



Mini Desktop Lathe Cum MILLING MACHINE



Winners of National Innovation Award 2024