Parul® University | NAAC GRADE A++ | PIERC Parul Innovation & Entrepreneurship Research Centre

FABLAB

WELCOME TO THE WORLD WHERE INNOVATIONS ARE WELCOMED

About Parul University

Situated at the heart of the cultural capital of Gujarat, Vadodara, Parul University is a testament to the fusion of rich cultural heritage history and the contemporary 21st century. Since its inception in 1993 to its recognition as an University in 2015, Parul University has emerged as one of the largest and leading academic institutions. The university is a rich blend of 21 faculties and 38 institutes offering a wide range of diploma, graduate, and postgraduate degree programs in various academic disciplines.

NAAC A++ ACCREDITED UNIVERSITY

Ranked Among **TOP 50 UNIVERSITIES OF INDIA**

NIRF INNOVATION RANKINGS 2024

4 Star Rating

From the **Ministry of Education's Innovation Cell, Government of India**

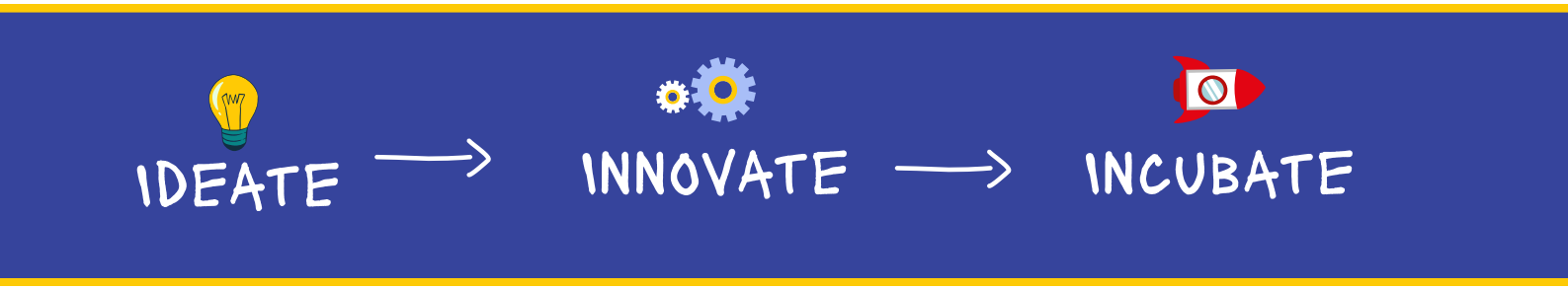
The PU Advantage

- **150+ Acres Campus**
- **210+ Startups Incubated**
- **2500+ Faculties**
- **50,000 Students**
- **21,000+ In-campus Residency**
- **160+ Professors from IITs, NITs, IISc, NIDs, NIFTs**
- **3200+ International Students**
- **150 National Awards & Rankings**
- **100+ Foreign Partnerships**

About Parul Innovation & Entrepreneurship Research Centre

Parul University established the Parul Innovation and Entrepreneurship Research Centre (PIERC) in 2015 as a Section 8 company. PIERC serves as a comprehensive business incubator, offering support and services to startups throughout their lifecycle, from initial concept development to the crucial growth phase. To broaden its impact, PIERC strategically launched four startup Accelerator units: Vadodara Startup Studio, Rajkot Startup Studio, Ahmedabad Startup Studio, and Surat Startup Studio. These dedicated units aim to empower a wider pool of entrepreneurs and nurture their groundbreaking ventures. Furthermore, PIERC houses a state-of-the-art Fab Lab, a technical prototyping facility designed to cultivate learning and innovation. Equipped with advanced technology like 3D printers, laser cutters, CNC routers, and vinyl cutters, the Fab Lab empowers aspiring entrepreneurs to bring their ideas into tangible prototypes.

By strategically expanding its services with Startup Studios and the Fab Lab, PIERC has established a robust ecosystem that fosters the success of aspiring entrepreneurs and innovators



Vision

Situated at the heart of the cultural capital of Gujarat, Vadodara, Parul University is a testament to the fusion of rich cultural heritage history and the contemporary 21st century. Since its inception in 1993 to its recognition as an University in 2015, Parul University has emerTo support entrepreneurs and cultivate a diverse and inclusive community of startups that collaborate and bolster each other, fostering growth and innovation irrespective of geographical barriers.ged as one of the largest and leading academic institutions. The university is a rich blend of 21 faculties and 38 institutes offering a wide range of diploma, graduate, and postgraduate degree programs in various academic disciplines.

Mission

Dedicated to supporting entrepreneurs, the organization aims to create an environment where startups collaborate, support one another, and thrive. The mission is to empower entrepreneurs by providing resources, mentorship, and opportunities to drive growth and innovation, thus promoting entrepreneurship as a catalyst for economic advancement, all while championing diversity and inclusivity

- **Empower entrepreneurs globally**
- **Foster a diverse and collaborative startup community**
- **Drive growth and innovation, regardless of location**
- **Promote diversity and inclusivity in all its endeavors**

Journey of PIERC

Parul Innovation & Entrepreneurship Research Centre

Establishment of EDC
Appointment of Institute-wise EDC Co-ordinators

2016

- Registration of Startup Incubator as a Section-8 Non-profit Company
- Beginning of Startup Incubation Program

2019

- SSIP Grant by Govt. of Gujarat
- Expansion of EDC Team

2021

- Recognition as a Nodal Institution by Government of Gujarat
- Received a grant of ₹ 235 Lacs for Incubator from DST, Govt. of Gujarat

2022

- Inauguration of Vadodara Startup Studio
- Inauguration of FABLAB at PU

2023

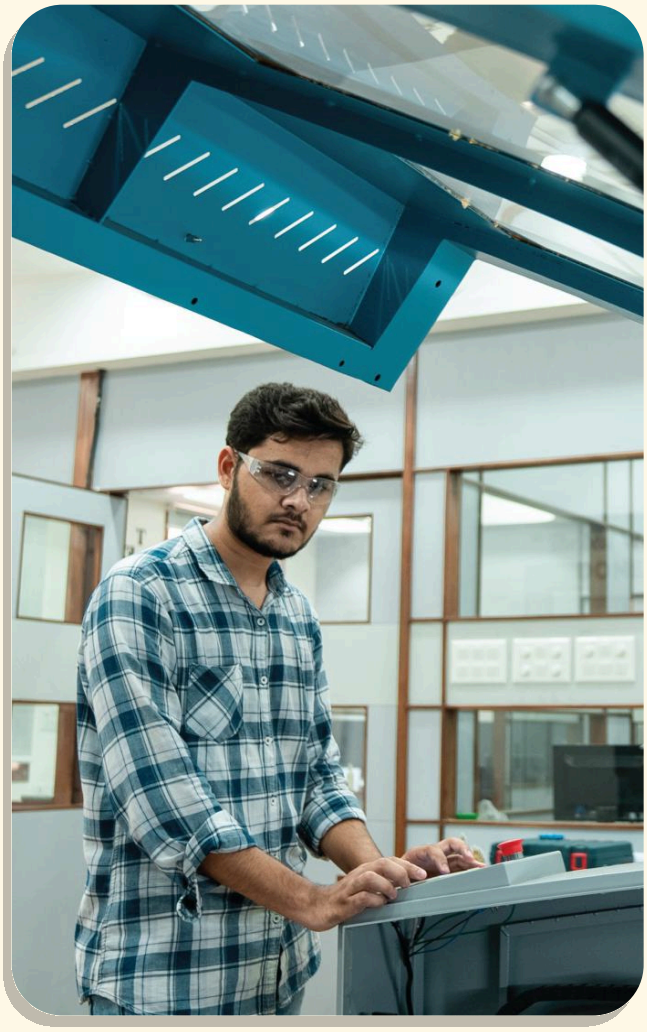
- Sanction of ₹ 3 Crore fund under Startup India initiative Govt. of India (SISFS) ₹ 5.6 Crore SSIP grant by Government of Gujarat 2023 Setting up Startup Studios in Ahmedabad, Surat and Rajkot
- Recognized as an MSME Incubator under the MSME Champions Scheme.

2024

- Received ₹4.02 Cr funding to establish the SPARSH Centre by BIRAC, Government of India.

About FabLab

A Fabrication Laboratory (FABLAB) is a technical prototyping platform for learning and innovation. It offers an environment which empowers students to create almost anything by leveraging advanced technologies. Fab Lab is an educational realm where learning happens in an authentic and engaging way allowing robust designing, prototyping, reflection, and iteration to allow students to find viable solutions to challenges and bring their ideas to life. Digital fabrication tools such as 3D Printers, laser cutters, CNC routers, and vinyl cutters among others aid them in demonstrating their ideas through technology. Fab Lab at Parul University is a place to play, create, learn, mentor, invent and innovate.

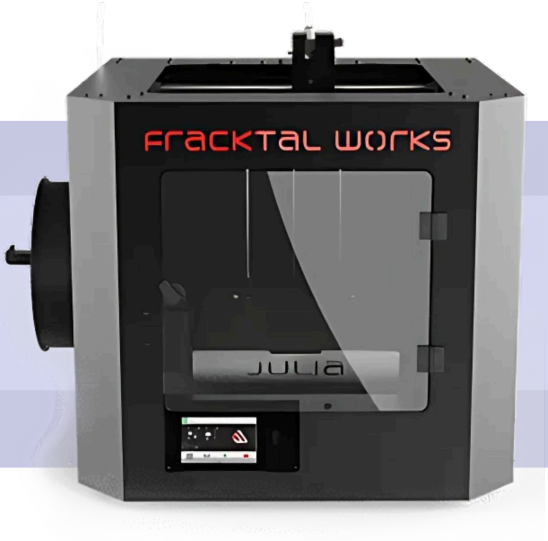


FABLAB Facilities

What makes our Lab FABLAB?

1. 3D Printer (FDM)

3D printing, also known as additive manufacturing, enables development of 3-dimensional products from digital prints. 3D printers allow the production of complex shapes in less materials as compared to traditional manufacturing methods. Two types of 3D printers are available; FDM Technology and PolyJet Technology, that facilitate creation of high-resolution using engineering - grade thermoplastics and acrylic - based photopolymers, respectively.



Specs:

- NAME: Julia Advanced
- Working Area: 200 mm × 200 mm × 200 mm
- Speed: 150 mm/s
- Material : PLA, PETG, ABS, ASA, PVA, PET, PC
- File Format Required: STP/STEP, STL, OBJ, 3MF

2. FDM Multi color 3D Printer

Bambu Lab X1-Carbon Combo is a high-speed CoreXY FDM 3D printer with multi-color and multi-material capabilities. Featuring AI-powered automation, 7µm lidar resolution, dual auto bed leveling, and a hardened steel nozzle, it supports a wide range of filaments, including carbon and glass fiber-reinforced polymers. The Automatic Material System (AMS) enables up to 16-color printing, making it ideal for advanced projects requiring strength, flexibility, and vibrant colors.

Specs:

- NAME: BambuLab X1 CARBON WITH AMS
- Working Area: 256 × 256 × 256 mm
- Nozzle: 0.2, 0.4, 0.6 mm
- Speed: 500 mm/s
- Material (1.75 mm): PLA, PETG, TPU, ABS, ASA, PVA, PET, PA, PC &
- Carbon/Glass Fiber Reinforced Polymer
- File Format Required: STP/STEP, STL, OBJ, 3MF

3. DLP 3D Printer

A DLP (Digital Light Processing) 3D Printer is an advanced resin-based additive manufacturing device that utilizes digital light projection technology to cure liquid photopolymer resin layer by layer. Unlike traditional FDM (Fused Deposition Modeling) printers, DLP printers use a digital micromirror device (DMD) chip to selectively project light onto the resin, solidifying it with high speed and precision. DLP technology enables high-resolution printing with sharp details and smooth surfaces, making it an ideal choice for applications requiring fine details and complex geometries, such as dental models, jewelry design, engineering prototypes, and miniature manufacturing.

Specs:

- NAME: ZORTRAX INKSPIRE
- Working Area: 132 × 74 × 175 mm
- Material: Basic resin
- Pixel Size: 50 microns (0.05 mm)
- Layer Quality: 25, 50, 100 microns
- File Format Required: STL, OBJ, DXF, 3MF, PL

4. Desktop 3D Scanner

A Desktop 3D Scanner is a high-precision scanning device that captures the shape, texture, and intricate details of a real-world object to generate a digital 3D model. Using laser or structured light technology, it analyzes the geometry and surface features of an object, converting them into high-resolution digital data that can be used for 3D modeling, reverse engineering, quality inspection, and digital archiving. Desktop 3D scanners are widely used in engineering, product design, medical imaging, archaeology, and animation due to their ability to quickly and accurately digitize physical objects. These scanners help in rapid prototyping, 3D printing, and precision manufacturing, making them an essential tool for research labs, design studios, and industrial applications.

Specs:

- NAME: EinScan-SE V2
- Single Shot Accuracy: ≤0.1 mm
- Single Scan Range: 200 × 150 mm
- Minimum Scan Volume: 30 × 30 × 30 mm
- Maximum Scan Volume: 200 × 200 × 200 mm
- File Output: OBJ, STL, ASC, PLY, 3MF

5. CO2 Laser Cutter & Engraver

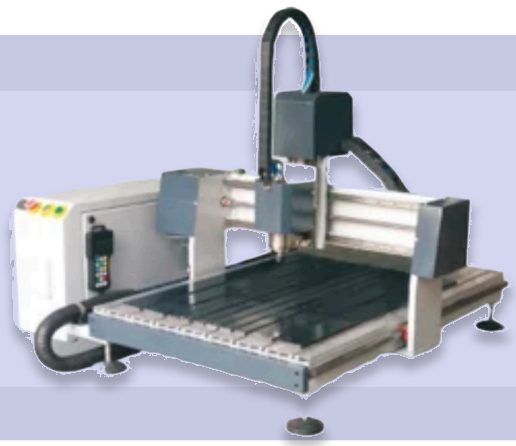
A CO_2 Laser Cutter & Engraver is a high-precision power tool that uses a focused laser beam to cut, engrave, or etch a wide range of materials, including wood, acrylic, leather, glass, rubber, and certain metals. It operates by directing a high-energy CO_2 laser through mirrors and lenses to achieve extremely detailed and accurate cuts or engravings. These machines are extensively used in industries, fabrication labs, and creative studios for prototyping, signage, personalized engraving, industrial marking, and artistic design. With computer-controlled automation, CO_2 laser cutters allow users to create intricate designs, text, and patterns with exceptional precision and consistency.

Specs:

- NAME: SIL e4040
- Working Area: 1200 × 1200 mm
- Graphic File Support: PLT, CDR, AI, DWG, DST, DXF, BMP, JPEG,
- TIFF, GIF, PCX
- Reposition Accuracy: 0.1 mm (Max)
- Laser Power: 100W
- Material: MDF, Acrylic, PC, Balsa Wood many non metallic sheets
- Thickness: 0.1 mm to 7 mm (MAX)

6. CNC router

A CNC (Computer Numerical Control) Router is a highly versatile and automated cutting machine used to precisely carve, engrave, and cut a wide variety of materials, including wood, plastic, acrylic, aluminum, foam, and composites. It operates through computer-controlled movements, ensuring high accuracy, repeatability, and efficiency in fabrication, prototyping, and manufacturing. CNC routers are widely used in fabrication laboratories, woodworking shops, sign-making, and industrial applications due to their ability to handle complex designs, intricate engravings, and 3D shaping with ease. Compared to manual cutting methods, a CNC router offers higher speed, greater consistency, and reduced material waste, making it an essential tool for architecture, product design, furniture making, and custom fabrication.



Specs:

- NAME: SUCCESS CNC ES-6090
- X-Y Axis Working Area: 600 × 900 mm
- Z Axis Working Area: 200 mm
- Resolution: ±0.02 mm
- Spindle Power: 3 kW
- Material: Acrylic, PVC, Sign Board, Plastic, Wood, MDF, Foam Board
- File Format Required: STP/STEP, DXF, STL
- Tools: Ball Nose & Straight (1 mm, 3 mm, 5 mm, 6 mm)

7. Vacuum Forming Machine

A Vacuum Forming Machine is a thermoforming device that shapes plastic sheets by heating them until they become pliable and then forming them over a mold using vacuum pressure. This method ensures a highly accurate and detailed replication of the mold, making it ideal for prototyping, product packaging, automotive components, signage, and custom manufacturing. Vacuum forming is particularly beneficial for lightweight and cost-effective production of parts that require precision on only one side, such as blister packaging, trays, enclosures, and face shields. It is a widely used technique due to its efficiency, scalability, and ease of operation, making it suitable for industrial, commercial, and educational applications.

Specs:

- NAME: MAYKU FORMBOX
- Working Area: 200 × 200 mm
- Depth: 130 mm
- Compatible Sheet Materials (0.4~2MM Thickness):
- PETG, HIPS, PLA, Polypropylene, Polycarbonate, Polystyrene, PVC,
- Kydex, HDPE, LDPE, EVA Foam, TPU, ABS, Extruded Acrylic

8. Desktop PCB Engraving & Milling Machine

A Desktop PCB Engraving & Milling Machine is a precision tool used for fabricating printed circuit boards (PCBs) and engraving various materials with high accuracy. It utilizes isolation milling, a non-chemical method that removes copper from PCB material sheets to create signal traces, patterns, and circuit structures directly from a digital circuit board design. This technique eliminates the need for traditional chemical etching, making it an eco-friendly and cost-effective alternative for prototyping and small-scale PCB production.

Specs:

- NAME: Roland monoFab SRM-20
- Working Area: 203.2 (X) × 152.4 (Y) × 60.5 (Z) mm
- Software Resolution: 0.001 mm/step
- Mechanical Resolution: 0.000998594 mm/step
- Spindle Power: 50W
- Material: Modeling Wax, Chemical Wood, Foam, Acrylic, Poly Acetate,
- ABS, PC Board
- Tools: Ball Nose & Straight (0.4 mm, 0.8 mm, 1 mm, 3 mm, 5 mm, 6 mm)
- File Format Required:
  1. For PCB Milling: Gerber File (Up to 2-layer PCB)
  2. For Milling: STP/STEP, DXF, STL

9. Vinyl Cutter Machine

A vinyl cutter is a computer-controlled cutting machine that uses a sharp blade to precisely cut designs, letters, and intricate patterns from vinyl sheets. These machines are widely utilized in industries like advertising, signage, and graphic design, allowing users to create custom decals, stickers, banners, vehicle wraps, T-shirt transfers, and wall graphics with high accuracy. With no restriction on length, this vinyl cutter is highly versatile and supports a wide range of applications, from small-scale custom designs to large commercial projects. Whether used for branding, promotional materials, or creative DIY projects, the Vinyl Cutter Machine delivers professional-grade results with efficiency and reliability.

Specs:

- NAME: Roland GS2-24 Vinyl Desktop Cutting Plotter
- O Working Area: 584 mm width (No restriction for length)
- O Software Resolution: 0.025 mm/step
- O Mechanical Resolution: 0.0125 mm/ step
- O Material: Vinyl Sheet
- O File Format Required: PNG, JPEG

10. Mechanical Workbench

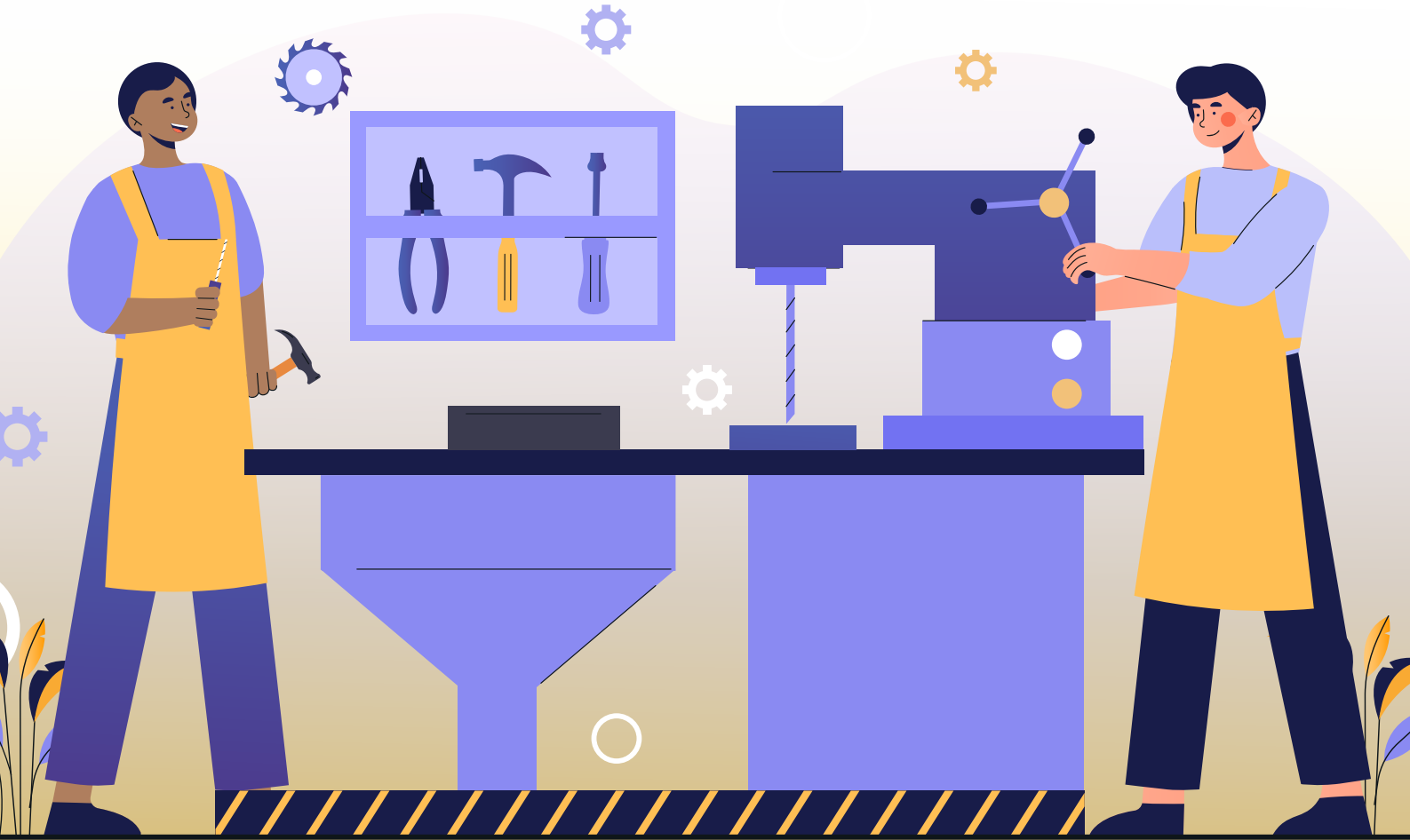
A Mechanical Workbench is a dedicated workspace equipped with advanced mechanical power tools and precision machinery, enabling users to efficiently fabricate, assemble, and modify mechanical components. It provides access to high-precision cutting, drilling, shaping, and finishing tools, allowing for the creation of highly accurate models and prototypes with ease. Mechanical workbenches are essential in engineering workshops, fabrication labs, and research facilities, where high-precision manufacturing and rapid prototyping are required. They are commonly used in product development, mechanical design, and small-scale manufacturing, supporting professionals, students, and researchers in bringing conceptual designs to reality.

- wrench
- screwdriver (slotted and Phillips)
- Allen Key (Imperial & Metric)
- Hammer, ball pin hammer, C Clamp, plier
- Vice, Handsaw, Cordless drill, Angle Grinder
- Sander disc , Miter saw, Cutter saw, Table saw, Heat Blower,air blower

11. ESD workstation

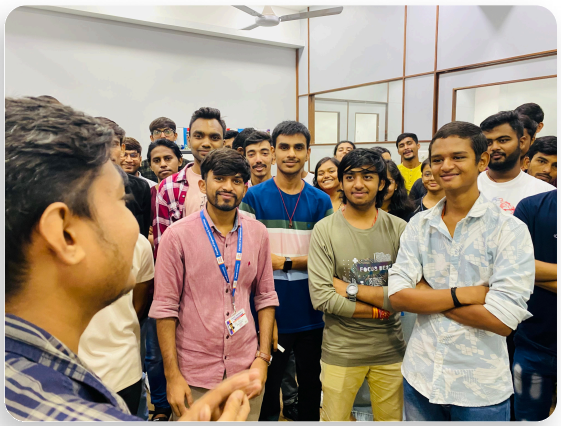
An ESD (Electrostatic Discharge) Workstation is a specialized workspace designed to prevent damage caused by electrostatic discharges when handling sensitive electronic components. It is equipped with ESD-safe materials, tools, and accessories that help dissipate static electricity and minimize voltage build-up, ensuring a safe and controlled environment for working with circuit boards, semiconductors, and delicate electronic devices. Key features of an ESD workstation include conductive or dissipative work surfaces, grounded wrist straps, anti-static mats, ionizers, and grounding points, all designed to neutralize electrostatic charges.These workstations are widely used in electronics manufacturing, repair labs, research facilities, and industries dealing with microelectronics to protect sensitive components from static-induced failures.

- Digital oscilloscope,soldering iron, multimeter, frequency generator, DC power supply



WORKSHOPS

Fablab organizes a variety of hands-on workshops for students, covering a wide range of advanced fabrication technologies and equipment. These workshops include training on 3D printing, vinyl cutting, PCB milling, laser cutting, CNC routing, robotics, and IoT. Through these sessions, students gain practical experience and technical skills, enabling them to transform their innovative ideas into functional prototypes. By participating in these workshops, students not only enhance their knowledge of digital fabrication but also develop problem-solving abilities, creativity, and a maker mindset essential for future technological advancements.



MAKERSPACE

(Where Innovations Come Alive)

Maker's Space is a collaborative environment designed for innovators, entrepreneurs, and creators to develop and refine their ideas. Equipped for brainstorming, prototyping, and startup development, it provides the necessary tools and resources to support every stage of the creative process. The Green Room fosters a dynamic atmosphere where individuals and teams can experiment, build, and bring their visions to life. Whether working on a new product, testing a concept, or exploring cutting-edge technology, Maker's Space serves as a catalyst for turning ideas into reality.

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REACH US OUT

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