



Idea Development, Evaluation & Application



Agni | **25** YEAR OF EXCELLENCE
College of Technology

(An AUTONOMOUS Institution)

Off.OMR, Chennai - 600130.

Equipment's With Specifications

ABOUT THE INSTITUTION

The rapid progress made by our country in the field of science and technology has given rise to a phenomenal demand for qualified engineers in all areas and to cope up the demand there has been a surge in institutions offering Engineering Education. Agni College of Technology Chennai was established in the year 2001 by Sri Balaji Charitable and Educational Trust with the objective of producing high quality engineers and technocrats. The board members of the trust hail from a diverse portfolio of Real Estate, Education, Advertising, Importing, Logistics, Legal service, Energy, Sports and more. Some of the entities of the board that makes rapid progress for the past two decades are:

The campus with well built class rooms, fully equipped laboratories, workshops, modern computer center and a well stocked library can be compared to the best available elsewhere. The management has also taken all efforts to build a team of committed faculty members, who form an integral part in the growth and development of the college.

The college is situated in Thalambur Chennai, 20 kms away from Adyar and 3 kms from Navalur, off the Old Mahabalipuram Road (IT Highway) and is well connected by road. The Engineering college is approved by AICTE, New Delhi, Affiliated to Anna University Chennai, Accredited by National Board of Accreditation, New Delhi and an ISO 9001:2015 Certified Institution

ACCREDITATIONS



ACT - AICTE IDEA LAB

The AICTE IDEA (Idea Development, Evaluation & Application) Lab at Agni College of Technology (ACT) was established under the initiative launched by the All India Council for Technical Education (AICTE) to promote experiential learning among students. The IDEA Lab enables students and faculty to apply Science, Technology, Engineering, and Mathematics (STEM) fundamentals through hands-on, project-based learning that cultivates creativity, innovation, and practical problem-solving skills.

Under this prestigious scheme, AICTE provides a grant support of ₹30 lakhs, Garuda Aerospace Pvt. Ltd. contributes ₹30 lakhs, and Agni College of Technology adds ₹30 lakhs as management funding, making a total project outlay of ₹90 lakhs for establishing the AICTE-IDEA Lab.

The ACT AICTE-IDEA Lab serves as a common innovation facility that empowers students and faculty to “Engage, Explore, Experience, Express, and Excel.” It enhances 21st-century skills such as critical thinking, research aptitude, collaboration, communication, and lifelong learning.

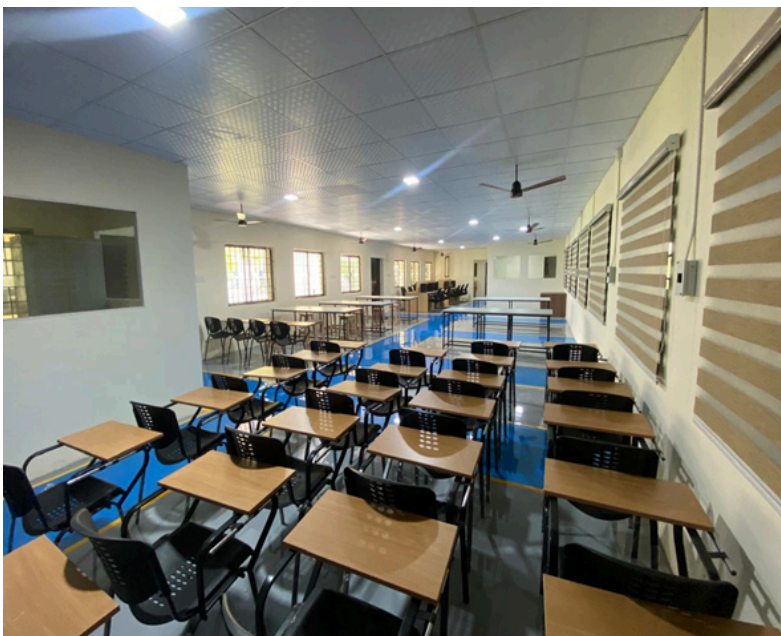
This lab acts as a hub for multidisciplinary education, research, and industry collaboration, offering opportunities for design thinking, prototyping, and product innovation. Faculty members are encouraged to utilize the lab’s infrastructure for creating innovative projects, internships, and real-world solutions that address societal and industrial challenges.

The AICTE-IDEA Lab at Agni College of Technology, co-funded by AICTE, Garuda Aerospace Pvt. Ltd., and ACT Management, stands as a centre of excellence fostering innovation and creativity—preparing the next generation of engineers and innovators for the dynamic global technology landscape.

OBJECTIVE

- Encourage students for applying the STEM concepts towards product visualization
- To provide students with 21st-century skills like problem-solving, creative thinking etc.,
- To facilitate students and faculty members to engage, explore, experience, express, and excel.
- To guide and support students in participating in ideation challenges/hackathons like SIH, AICTE Chhatra Vishwakarma Awards National Innovation Contest, etc.
- Promoting and implementing various schemes and initiatives of the government in relation to innovation and entrepreneurship.

INFRASTRUCTURE FACILITIES



ELECTRONIC PRODUCT DESIGN LAB

The Product Design Lab at Agni College of Technology, established under the AICTE–IDEA Lab Scheme, is a hub for innovation, design, and prototyping in electronics and embedded systems. It enables students and researchers to design, test, and develop real-world electronic products.

A key highlight is the ZEEK 400X PCB Prototyping Machine, installed by Zeekers Technology Solutions Pvt. Ltd., Coimbatore, supporting rapid FR4 PCB fabrication with high precision for academic and industrial applications.

Machine Highlights:

- Rapid FR4 PCB prototyping for research and training
- Advanced dust collection and stable MS frame
- Manual Tool Change (MTC) and plug-and-play interface
- Ready-to-use starter kit for quick deployment

Application:

PCB design and research, embedded prototype development, electronics testing, IoT hardware validation, and startup product development.

Additional Facilities:

Oscilloscopes, function generators, analysers, soldering/rework tools, CNC machines, and software like MATLAB, Simulink, LabVIEW, Altium, KiCad, and Eagle.

The Product Design Lab bridges theory and practice, nurturing creativity, innovation, and industry-ready engineering skills.



ADDITIVE MANUFACTURING LAB

The 3D Printing Lab at Agni College of Technology, established under the AICTE-IDEA Lab Scheme, is a cutting-edge facility designed to promote innovation, design, and rapid prototyping. It enables students and researchers to transform digital models into real-world functional prototypes with precision and reliability.

A key highlight of the lab is the Bambu Lab H2D 3D Printer with Automatic Material System (AMS), installed by Zeekers Technology Solutions Pvt. Ltd., Coimbatore. This advanced printer supports high-speed, multi-material, and multi-color 3D printing, ideal for product design, research, and innovation activities.

Machine Highlights:

- Ultra-fast CoreXY architecture for high precision and speed
- Multi-color and multi-material printing via AMS unit
- Smart wireless monitoring with mobile app integration
- Fully enclosed chamber for consistent print quality
- Auto bed leveling and filament detection system
- AI-based vibration and extrusion compensation



Software's Used

Tinker Cad
Onshape
Fusion 360
CATIA
SOLID Works

Software's Used

Ultimaker Cura
Simplify 3D
Creatware
PrusaSlicer

Software's Used

Revo Scan
Revo Studio

3D Scanning Lab

The 3D Scanning Lab at Agni College of Technology, established under the AICTE-IDEA Lab Scheme, focuses on reverse engineering, product inspection, and digital modeling. It provides students and researchers with advanced tools for high-precision 3D scanning and design validation.

The lab features the CR-Scan Raptor 3D Scanner, installed by Zeekers Technology Solutions Pvt. Ltd., Coimbatore, which uses a 7-line blue-light laser system to deliver 0.02 mm accuracy and captures real-time 3D data at 60 fps, making it ideal for research and industrial applications.

Machine Highlights:

- 7-line blue-light laser for ultra-fine precision
- High-speed scanning up to 60 fps
- Accuracy up to 0.02 mm at close range
- User-friendly mesh generation software
- Portable design for lab and field use
- One-year service warranty (conditions applicable)

Application:

Reverse engineering, industrial inspection, 3D modeling, design validation, academic research, artifact restoration, and medical/biomechanical modeling.

The 3D Scanning Lab enhances product development, design accuracy, and innovation, bridging the gap between virtual design and real-world manufacturing.



CNC ROUTER MACHINE

Machine Overview

The Zeekers CNC Router Machine is a high-performance precision cutting system engineered for industrial-grade machining, prototyping, and educational use.

With robust construction, advanced motion control, and superior accuracy, it enables efficient machining of wood, acrylic, foam, MDF, and soft metals.

Machine Highlights:

- Dual-motor stepper system for stable motion
- 3.5 kW air-cooled spindle for fast cutting
- HIWIN linear guides for lasting precision
- Built-in dust collector for clean workspace
- Works with wood, MDF, acrylic, foam, aluminum
- Heavy-duty build for continuous use

Applications

- CNC Cutting and Engraving for Wood & Acrylic
- Prototype Development for Industrial Design
- Educational Training in CNC Machining
- Architectural Model Fabrication
- Signage and Decorative Panel Manufacturing
- Furniture and Fixture Production
- Rapid Manufacturing and Product Development



CO₂ LASER CUTTING MACHINE

Machine Overview

The CO₂ Laser Cutting Machine offers high-speed, precision cutting and engraving across a wide range of materials including MDF, acrylic, plywood, and leather.

Ideal for educational institutions and design labs, it provides a perfect blend of accuracy, efficiency, and reliability for prototyping, model making, and artistic

Machine Highlights:

- High-speed precision cutting for MDF, acrylic, and plywood
- LM Guide Rail ensures smooth and accurate motion
- Reliable water-cooled CO₂ laser system for consistent output
- Includes essential accessories for immediate operation
- Robust design suitable for continuous institutional use
- Service Warranty: One Year (Conditions apply)

Applications

- Acrylic and MDF Model Prototyping
- Educational and Research Fabrication Projects
- Architectural and Artistic Model Cutting
- Nameplates, Engraving, and Decorative Designs
- Workshop and Training Applications
- Industrial Product Labeling and Marking
- Creative Craft and Design Fabrication



LATHE CUM MILLING MACHINE (Table Top Version)

Machine Overview

The Lathe cum Milling Machine (Table Top Version) is a versatile multi-functional workstation designed for precision machining, turning, milling, and drilling operations in compact spaces. Ideal for engineering labs, R&D centers, and prototyping environments, this machine offers a perfect balance between functionality, performance, and portability.

Machine Highlights:

- Dual-function design for both turning and milling operations
- Variable spindle speed (50–2500 rpm) for precision control
- Compact and sturdy build ideal for desktop use
- Suitable for light metal and plastic component machining
- Ideal for educational, research, and training environments
- Easy to maintain and energy efficient

Applications

- Prototyping and Product Development
- Precision Component Machining
- Academic and Vocational Training
- Research Laboratories
- Small-scale Tooling and Workshop Applications
- Repair and Maintenance Operations
- Teaching Aid for Machining Fundamentals



DIGITAL STORAGE OSCILLOSCOPE

Machine Overview

The SDS814X HD Digital Storage Oscilloscope delivers high resolution signal acquisition and mixed-signal analysis in one compact system. With a 12-bit ADC, 2 GSa/s sampling rate, and 50 Mpts memory depth, it's ideal for academic laboratories, embedded debugging, and advanced R&D testing.

Machine Highlights:

- 12-bit high-resolution signal capture with exceptional clarity
- Mixed-signal capability with 16 digital channels (MSO)
- Deep memory depth for detailed waveform recording
- Built-in arbitrary waveform generator for signal simulation
- Fast 7-inch touchscreen for intuitive control and operation
- Advanced trigger, decode, and measurement functionalities

Applications

- Embedded System Debugging and Verification
- Analog and Digital Circuit Testing
- Signal Integrity and Noise Analysis
- Research and Development in Electronics Labs
- Educational Training and Lab Demonstrations
- Waveform Generation and Timing Analysis
- Sensor and Communication Signal Evaluation



01	VINYL CUTTER	02	BELT AND DISC SANDING MACHINE	03	SCROLL SAW MACHINE
04	WOOD LATE	08	BENCH TOP DRILL MACHINE	09	REFLOW OVEN
07	COMPUTERIZED SEWING MACHINE	11	FALAMENT POWER SUPPLY	18	REFLOW OVEN
13	DIGITAL STORAGE OSCILLOSCOPE	14	NON-CONTACT VOLTAGE TESTER	15	LCR METER
13	BENCHTOP MULTIMETER	17	DESOLDERING MACHINE	15	DIGITAL MICROCOPE
16	SOLDER STATIONS	20	CORDLESS DRILLING MACHINES	24	STRAIGHT GRINDER
22	MITER SAW	26	ANGLE GRINDER	24	TABLE SAW
28	POWER CIRCULAR SAW	29	CENTRIFUGAL BLOWER	29	VACUUM CLEANER

SAW MACHINE

Description

- Surface Recommendation : Wood
- Power Source : CordedElectric
- Included Components
- 1 Mitre Saw
- Product Dimensions
57.5L x 40W x 41H Centimters
- Item Weight: 11.26 Kilograms
- Speed : 5000 RPM
- Blade Length: 57.5 Centimetres
- Cutting Angle: 45 Degree



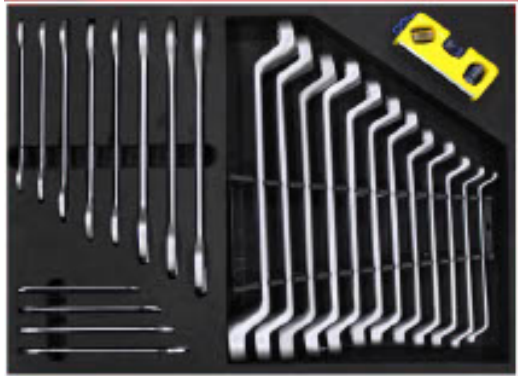
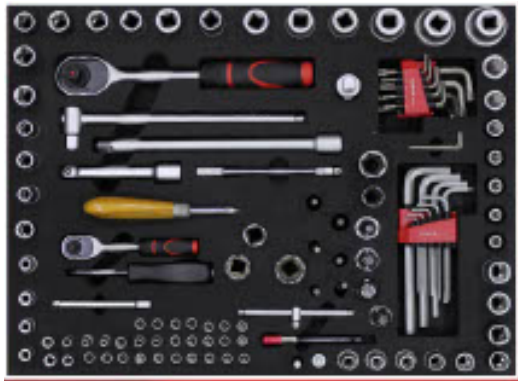
POWER TOOLS



SOLDERING STATION



Tools Trolley with 210-Piece Tool Set & Foam Assortment Inserts



Air Compressor



Declaration

This is to certify that the details and specifications of the equipment listed in the document titled "Major Equipment Specifications for Agni College of Technology AICTE IDEA Lab" have been carefully prepared in accordance with the objectives and requirements of the AICTE IDEA Lab initiative.

We hereby confirm that the information provided in the document is accurate and complete to the best of our knowledge and has been compiled by the authorized representatives of Agni College of Technology. The identified major equipment has been proposed to effectively support the academic, research, innovation, and development activities of the AICTE IDEA Lab, strictly adhering to the guidelines prescribed by AICTE.

We further declare that the funds sanctioned for this project will be utilized responsibly and exclusively for the procurement, installation, and operational support of the specified equipment in alignment with the approved project objectives.

We assume full responsibility for ensuring compliance with AICTE norms and for the proper execution and implementation of the AICTE IDEA Lab project at Agni College of Technology.

Dr. Srinivasan Alavandar

**Principal & Chief Mentor
ACT- AICTE IDEA LAB**

Dr. R. Pandiyarajan
Coordinator
ACT - AICTE IDEA LAB

Dr. S. K. Narendranathan
Co-Coordinator
ACT - AICTE IDEA LAB



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