



National Institute of Technical Teachers Training and Research

**Institution Deemed to be University under Distinct Category, A Centrally Funded Technical Institute
Ministry of Education, Government of India, Taramani, Chennai - 600 113**

Explore the Future: Advanced 3D Printing Facilities

Innovation • Precision • Possibility

About Us

We National Institute of Technical Teachers Training and Research (NITTTR) Chennai harness cutting-edge 3D printing technology to turn ideas into reality. Our facility is equipped to serve industries ranging from education and research to product development and custom manufacturing.

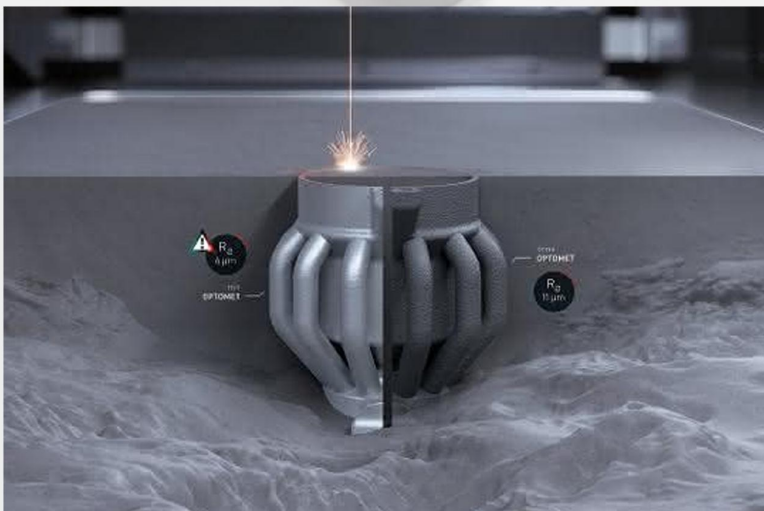
The 3D Printing Facility is established to serve as a cutting-edge hub for innovation, research, and product development. Equipped with advanced additive manufacturing technologies, the facility is designed to meet the growing demands of both industry and academia.

It supports rapid prototyping, customized manufacturing, and hands-on learning, enabling students, researchers, and professionals to explore complex design possibilities with precision and efficiency.

Our Facilities

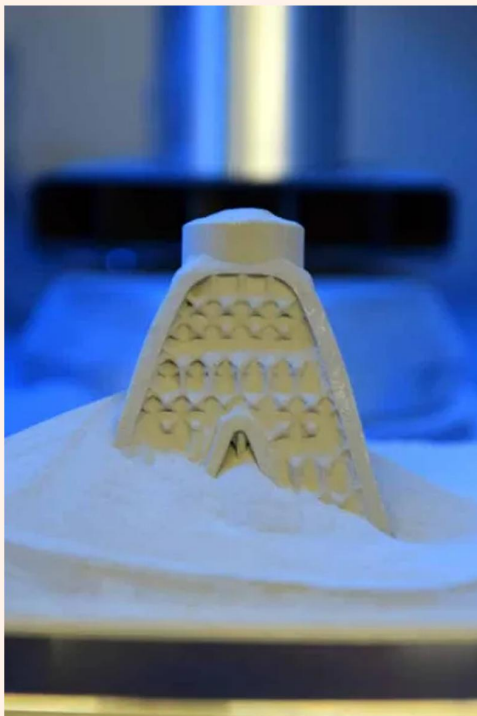
Selective Laser Melting - Metal AM

Build Volume(XYZ)	150mm x 180mm
Layer Thickness	20 - 100 micron
Focus Diameter	45 - 80 micron
Build Rate	20cm ³ /h and above
Precision Optics Laser	F-theta lens, high speed scanner
Laser Type	Yb - Fibre Laser
Laser Power	500W
System Dimension(mm)	1650 x 1250 x 2350
Scan Speed(Max)	7m/s



Selective Laser Sintering (SLS)

Build Volume	113 x 113 x 123 in mm
Build Table	Dynamic adjustable/scalable platform
Working Materials	Ceramic Powders - HAP, $\text{Ca}_3(\text{PO}_4)_2$, PA12
Print Layer Resolution	120 micron
Laser Speed	5 - 600mm/sec
Laser Type	405nm Diode
Laser Power	30 watts
Chamber Temperature	30 - 180°C
Surface Temperature	Upto 200°C



Stereolithography - Resin Based 3D Printing object

Build Volume

145 x 145 x 175 mm

**Layer Thickness
(Axis Revolution)**

25, 50, 100 microns

Laser Spot Size (FWHM)

140 microns

Laser Specifications

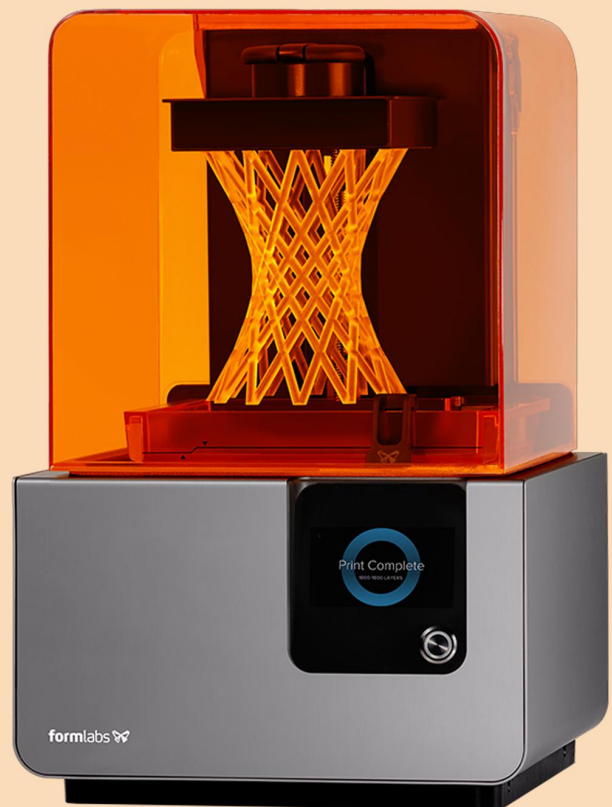
EN 60825-1:2007 certified Class 1
Laser Product 405nm violet laser

Operating Temperature

Auto-heats to 35°C

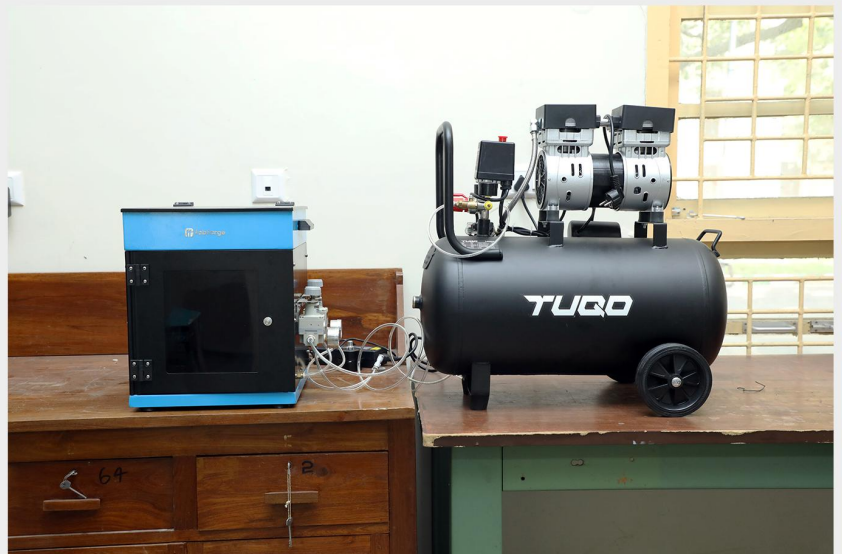
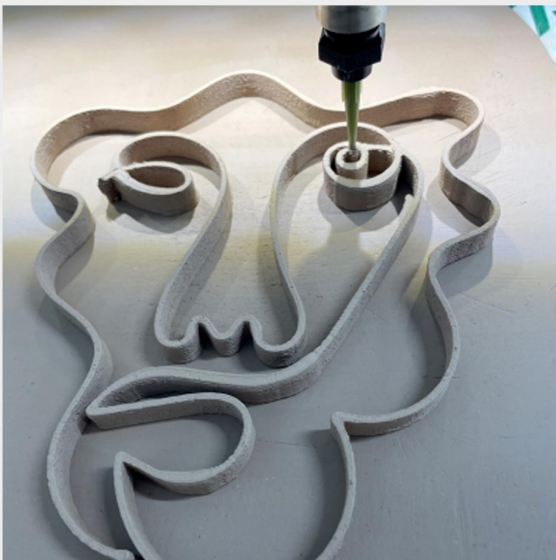
Supports

Auto-Generated, Easily Removable



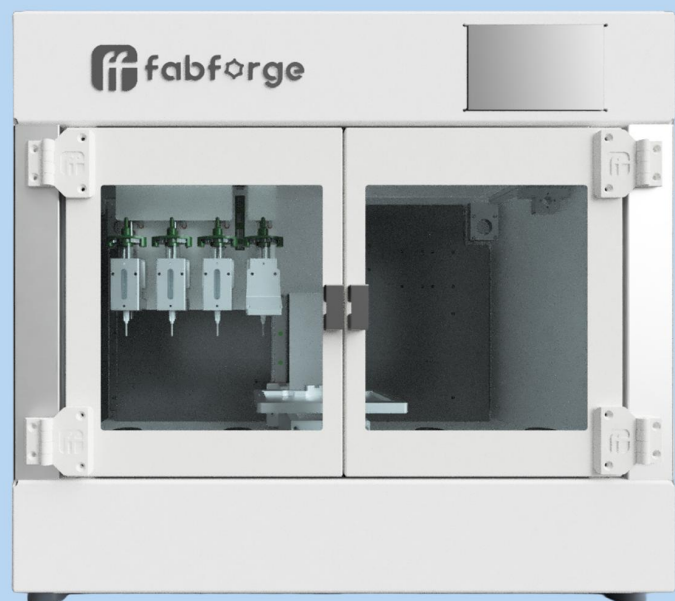
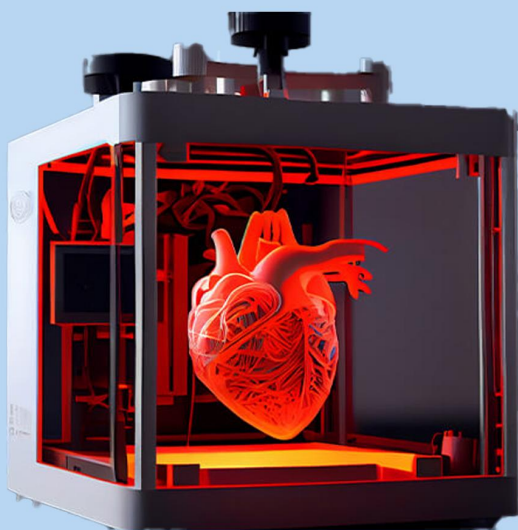
Paste Extrusion/Slurry based 3D Printing

Build volume	100 x 110 x 110 in mm
Build Table	TEFLON - Swappable
Viscosity Range	Upto 20000 Poise
Print Layer Resolution	0.1mm - 1.54mm
Print Speed	5 - 60mm/sec
Extruder Counts	2
Extruder Volume	30-55cc - Expanding range to 500 cc
Head Temperature	80°C
Dispensing Nozzle Range	0.1mm - 1.54mm
Dispensing Range	0.01 - 0.8MPa
Material Type	Open Source



Bio 3D Printer

No of Print Heads	8
Print table types	130 x 90 x 70 mm in XYZ directions
Working Materials	Hydrogels, Bio inks, Live cells etc
Working Viscosity	Upto 12000 Poise
Supported Nozzles	0.1mm - 1.54mm (All Taper tips, Steel tips, Full metal tips)
Syringe Volume	5CC & 10CC
Local Photo Curing	365nm, 405nm, 465nm, 520nm
Movement Resolution	Min X - 1.0 micron, Y - 1.0 micron, Z - 1.0 micron
Printing Speed	10 - 120 mm/sec



Fused Deposition Modeling (FDM)

Build Volume	X - 500mm, Y - 500mm, Z - 500mm
Extruder	High Torque Direct Drive Extruder
Nozzle Temperature	180 to 400°C
Bed Temperature	60 to 150°C
Envelop Temperature	30 to 50°C for ABS, PETG AND HIPS materials
Layer Thickness	X and Y axis - 25 micron, Z axis - 10 micron
Accuracy	25 micron
Nozzle Diameter	0.2mm to 1mm



Composite Solid Propellant Slurry-Based Screw 3D Printer

Build Volume	200 x 200 x 200mm
Working Viscosity	Upto 100000 poise
Print Environment	Vacuum upto 1 torr
Working materials	Solid propellants
Supported Nozzles	2mm
Local photo curing	365nm, 405nm
Syringe volume	50cc or 500cc
Operating pressure	Upto 8 bar

