

Prayas Centre Name IIT Mandi Catalyst
City Mandi
State Himachal Pradesh
Fablab Page Link <https://www.iitmandicatalyst.in/facilities/>

Equipment available at IIT Mandi Catalyst DST PRAYAS Shala

Section	Measuring equipment	
Sr. No.	Equipment Name	Equipment detail
1	Digital Multimeter with Temperature and frequency	<ul style="list-style-type: none"> Brand - Fluke Model – FLUKE-17B+ ESP Specification - 600 V Cat III safety rating 50% bigger display with bright white backlight Over-voltage indicator Frequency and temperature measurement Voltage, resistance, continuity, capacitance input terminal for ac and dc current measurements to 10 A current Diode test, data hold
2	Digital Multimeter with Temperature and frequency	<ul style="list-style-type: none"> Brand - Fluke Model – FLUKE-17B+ ESP Specification - 600 V Cat III safety rating 50% bigger display with bright white backlight Over-voltage indicator Frequency and temperature measurement Voltage, resistance, continuity, capacitance input terminal for ac and dc current measurements to 10 A current Diode test, data hold
3	LCR Meter	<ul style="list-style-type: none"> Brand - Keysight Model – Handheld Specification - 20000 counts, dual display, 100Hz/120Hz/1KHz/10KHz/100KHz Resolution 20000 counts Basic Accuracy:- 0.2% Auto identification (Ai) automatically determines and displays component type and measurements Detailed component analysis with DCR, ESR, Z, D, Q, and θ functions Battery life of 16 hours/AC-powered
4	LCR Meter	<ul style="list-style-type: none"> Brand - Keysight Model – Handheld Specification - 20000 counts, dual display, 100Hz/120Hz/1KHz/10KHz/100KHz Resolution 20000 counts Basic Accuracy:- 0.2% Auto identification (Ai) automatically determines and displays component type and measurements Detailed component

		analysis with DCR, ESR, Z, D, Q, and θ functions Battery life of 16 hours/AC-powered
5	IC Tester	<ul style="list-style-type: none"> Brand - Tektronix & Keithley Model – MME-DIT 2040 Specification - Display Type- 7 segmented type, Material-Sheet Metal, Cabinet- Feature Field proven and rugged design Power Consumption-5W Weight-5KGs. Synchronous maximum speed 8 Mbps Storage Temperature:-4 to 149 deg relative humidity 10 to 90% supportive speed 100 Mbps. Liner Analog IC Tester
6	Electric Workstation	<ul style="list-style-type: none"> Brand - Scientific Model – Handheld Specification - 50 MHz DSO SMO502 Multi-output power supply Model PSD3304 10 MHz Function gen Model SM5078A Soldering St. LF399D Multimeter
7	DSO	<ul style="list-style-type: none"> Brand - Scientific Model –DSOX1202A Specification - 50 MHz DSO SMO502 Multi-output power supply Model PSD3304 10 MHz Function gen Model SM5078A Soldering St. LF399D Multimeter
8	Soldering Desoldering and Hot air station	<ul style="list-style-type: none"> Brand - NVIS Model – 7300L SMD Specification - For SMD Rework: Power consumption: 270W Air pump: diaphragm pump Capacity: 24L/min Hot air temperature: 200 to 550°C Temperature accuracy: $\pm 1^\circ\text{C}$ Soldering: Power consumption: 60W Input voltage: 190 to 290 V AC Temperature range: 180 to 480 °C Temperature stability: $\pm 10^\circ\text{C}$ Temperature accuracy: $\pm 1^\circ\text{C}$ of tolerance at idling time Tip to ground potential: under 2 mV Tip to ground resistance: under 2W Desoldering: Desold: 70 watts Input: 170 to 270 V (190 to 290 V AC) Temperature range: 180 to 480°C Pump: diaphragm type Vacuum: 600 mm/Hg
9	Soldering Desoldering and Hot air station	<ul style="list-style-type: none"> Brand - NVIS Model – 7300L SMD Specification - For SMD Rework:

		<p>Power consumption: 270W Air pump: diaphragm pump Capacity: 24L/min Hot air temperature: 200 to 550°C Temperature accuracy: ±1°C</p> <p>Soldering: Power consumption: 60W Input voltage: 190 to 290 V AC Temperature range: 180 to 480 °C Temperature stability: ±10°C Temperature accuracy: ±1°C of tolerance at idling time Tip to ground potential: under 2 mV Tip to ground resistance: under 2W</p> <p>Desoldering: Desold: 70 watts Input: 170 to 270 V (190 to 290 V AC) Temperature range: 180 to 480°C Pump: diaphragm type Vacuum: 600 mm/Hg</p>
10	Power Supply	<ul style="list-style-type: none"> ● Brand - Scientech Model – 4077 A Specifications: Three floating, independent DC supply voltages DC Outputs 0 -30V/ 2A, 5V/ 2 A & 0±15V (Dual Tracking) /1A each Constant voltage and constant current operation Short circuit protection Digital display for voltage and current Adjustable current limiter Excellent Line & Load Regulation
11	Power Supply	<ul style="list-style-type: none"> ● Brand - Scientech Model – 4077 A Specifications: Three floating, independent DC supply voltages DC Outputs 0 -30V/ 2A, 5V/ 2 A & 0±15V (Dual Tracking) /1A each Constant voltage and constant current operation Short circuit protection Digital display for voltage and current Adjustable current limiter Excellent Line & Load Regulation
12	Arbitrary /Function Generator	<ul style="list-style-type: none"> ● Brand - Tektronix Model – AFG1062 Specifications: 2Channel: 60MHz Bandwidth: 300MSa/s sampling rate: 1M points arbitrary waveform memory: 14-bits vertical resolution: 3.9 Color LCD: 2U half rack: USB Host/Device.
13	Arbitrary /Function Generator	<ul style="list-style-type: none"> ● Brand - Tektronix Model – AFG1062 Specifications: 2Channel: 60MHz Bandwidth: 300MSa/s sampling rate: 1M points arbitrary waveform memory: 14-bits vertical resolution: 3.9 Color LCD: 2U half rack: USB Host/Device.

Metalworking Facility		
Section	Metalworking Facility	
Sr. No.	Equipment Name	Equipment detail
14	Angle Grinder	<ul style="list-style-type: none"> • Brand - Eastman Model – EDG-100T Specification – Max Diameter: 100 MM Input Power: 850 W Net Weight: 1.94 KGS
15	Angle Grinder	<ul style="list-style-type: none"> • Brand - Eastman Model – EDG-100T Specification – Max Diameter: 100 MM Input Power: 850 W Net Weight: 1.94 KGS
16	Sheet Cutting Machine	<ul style="list-style-type: none"> • Brand - Atlas Model – KO-24 Specification – Max Diameter: 3 MM Input Power: 220 V Net Weight: 1.94 KGS
17	PEDESTAL GRINDER	<ul style="list-style-type: none"> • Brand - SMC Model –DMC-10-10 Specification – 1HP, 3 Phase, 2800 RPM, Disc 10 Inch, 440 VOLT, Cast Iron- Copper
18	PEDESTAL GRINDER	<ul style="list-style-type: none"> • Brand - SMC Model –DMC-10-10 Specification – 1HP, 3 Phase, 2800 RPM, Disc 10 Inch, 440 VOLT, Cast Iron- Copper
19	Bench Grinder	<ul style="list-style-type: none"> • Brand - Bosch Model –GBG 60-20 Specification – Bosch (GBG 60-20) SKU: POW.GRI.41528147, Type of Product: Bench Grinder, Part No.: 0 601 27A 4F0, No Load Speed: 3000/3600 RPM, Rated Power Input: 600 W, Frequency: 50-60 Hz, Weight: 15 Kg, Sub Type: Professional Heavy Duty, Power Source: Corded, Disc Diameter: 200 mm
20	Bench Grinder	<ul style="list-style-type: none"> • Brand - Bosch Model –GBG 60-20 Specification – Bosch (GBG 60-20) SKU: POW.GRI.41528147, Type of Product: Bench Grinder, Part No.: 0 601 27A 4F0, No Load Speed: 3000/3600 RPM, Rated Power Input: 600 W, Frequency: 50-60 Hz, Weight: 15 Kg, Sub Type: Professional Heavy Duty, Power Source: Corded, Disc Diameter: 200 mm
21	BELT SANDER	<ul style="list-style-type: none"> • Brand - Master Model – EDG-100T Specification – Cap 6inch*600mm Belt Size with 1 H.P, 3 Phase Motor

22	BELT SANDER	<ul style="list-style-type: none"> ● Brand - Master Model – EDG-100T Specification – Cap 6inch*600mm Belt Size with 1 H.P, 3 Phase Motor
23	POWER HACKSAW	<ul style="list-style-type: none"> ● Brand - Master Model – VK-8 Specification – Hydraulically Operated, Round Cutting 200mm, Complete With 1HP Motor, Starter, 12” /14” Blades, Hydraulic Motor 0.5 Hp
24	Air Compressor	<ul style="list-style-type: none"> ● Brand - PWN Model – PWN Specification – Air Compressor 5HP With Motor
25	CNC LATHE MACHINE	<ul style="list-style-type: none"> ● Brand -PROXXON Model – PD 400/CNC Specification – Centre Width: 395-405 mm Height of centers: 82-88 mm Maximum workpiece dia: 98-105 mm Machine base: Cross-ribbed surface, high-quality cast iron with the ground prismatic guide, must be capable of readily adopting milling/drilling attachment. Spindle: Oversized main spindle, supported with adjustable taper roller bearings Spindle receiver: MK3 Spindle drill hole: 18-22 mm Spindle concentricity: Max. 5 microns Chuck: ROHM-3 jaw chuck as per DIN 6386, centrally clamped, 100 mm diameter Run out without chuck: Max. 10 microns Sleeve receiver: MK2, retractable sleeve with scale Spindle speeds: Must be adjustable with switch and by the drive belt. Speed Range: Not beyond 75 to 2800 rpm Speed Stages: 6 - 8 Motor rating: Input 850W to 880W, Output 540W to 560W Motor type: Induction motor, Single phase 230 V Traverse Cross: 65 - 75 mm Traverse Longitudinal: 290-310 mm Size: Not more than (L x D x H) 915 x 407 x 305 mm Weight (complete): Less than 52 kg NC Travel Mechanism: Micro stepping motor 1.8 A, holding torque 50Ncm Software and Control Unit: Fully integrated CAD-CAM software, Simple preparation of workpieces drawing. The finished drawing can be converted into machining instruction with a simple mouse and keyboard, in accordance with DIN/ISO 66025, and can be edited and exported. Reversely, it must also allow imports or self-writing of data sets. The implementation of the data sets must also be available with prior simulation. The manual operation must also be

		<p>possible with the use of a simple computer keyboard. Control Unit with power consumption between 140 - 150W, must be independently clocking, modulating pulses for micro-stepping.</p> <p>Scope of delivery</p> <ul style="list-style-type: none"> 1 Qty. Turner with attached micro-stepping motors 1 Qty. the control unit 1 Qty. program software (including electronic manual) 1 Qty. Mains cable for Control Unit 1 set of connecting cables 1 set of operating tools 1 set of commissioning manual and safety regulations 1 Qty. Three-jaw clamp (Ø 100mm) 1 Qty. Traveling center 1 Qty. Ring gear drill chuck (clamped up to 10mm) 1 Qty. Multiple tool holder with 2 tool holder elements 1 Qty. Chuck guard
26	CNC MILLING MACHINE	<ul style="list-style-type: none"> ● Brand - PROXXON Model – FF 500 CNC Specification - Motor and Drive Type: Brushless Motor to direct drive (Accuracy Min 0.05mm) with variable speed pre-selection., with a 4-digit speed display. Voltage: 220 - 240 Volt, 50/60 Hz, Single Phase Capacity: 390 - 410 Watt Variably controllable Motor Speed: Not beyond from between 100rpm to 4000rpm Basic dimensions: H Max. 760mm, W Max. 560mm, D Max.560mm Quill feed: 28-32 mm Cross table: solid cross table with 3 continuous T-slots, for Size 8 Nuts. Slot clearance: 44 - 47 mm Table size: L 390 - 410mm x W 120 -130mm Tool holder: From 6 to12 mm collet chucks Milling head: Must be pivot-able to the left and right by 90° (with degree graduation). Extension: 120 - 130 mm Column: Max. 130x110x450mm Noise generation: Max. 75 dB(A) Vibrations: Max. 2.8 m/s² Weight: Max. Less than 55 kg Cross Travel: Less than 55 kg Vertical Travel: 190 - 210mm NC Travel Mechanism: Micro stepping motor 2.2 A, holding torque Min 1.27 Nm Software, and Control Unit: Fully integrated CAD-CAM software, Simple preparation of Workpiece drawing. The finished drawing can be converted into machining instruction with a simple mouse and keyboard, in accordance with DIN/ISO 66025, and can be edited and exported. Reversely, it must also allow imports or self-writing of data sets. The implementation of the data sets must also be available with prior simulation. The manual operation must also be possible with the use of a simple computer keyboard. Control Unit with power consumption between 140 - 150W, must be

		<p>independently clocking, modulating pulses for micro-stepping.</p> <p>Scope of delivery:</p> <p>1 Qty. Milling cutter with attached micro-stepping motors</p> <p>1 Qty. Control unit</p> <p>1 Qty. program software (including electronic manual)</p> <p>1 Qty. Mains cable for Control Unit</p> <p>1 set of connecting cables</p> <p>1 set of operating tools</p> <p>1 set of commissioning manual and safety regulations</p> <p>1 set of collet chucks Ø 6-, 8-, 10- and 12-mm incl. swivel nut</p>
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Section		Power Tool
Sr. No.	Equipment Name	Equipment detail
27	Jig Saw	<ul style="list-style-type: none"> ● Brand - Eastman Model – EJS-060 Specifications: Cutting Depth: 25 mm No Load Stroke Rate: 500-3000 spm Power Consumption: 600 W
28	Jig Saw	<ul style="list-style-type: none"> ● Brand - Eastman Model – EJS-060 Specifications: Cutting Depth: 25 mm No Load Stroke Rate: 500-3000 spm Power Consumption: 600 W
29	Portable Drill Machine	<ul style="list-style-type: none"> ● Brand - Eastman Model – EID-013 Specifications: Type: Pistol Grip Drill Chuck Size: 13 mm Reverse Rotation Power Source: Corded
30	Portable Drill Machine	<ul style="list-style-type: none"> ● Brand - Eastman Model – EID-013 Specifications: Type: Pistol Grip Drill Chuck Size: 13 mm Reverse Rotation Power Source: Corded
31	Manual Stacker	<ul style="list-style-type: none"> ● Brand - ACE Model – MS 10 Specifications: Capacity: 1000 Kg, Lift Height: 1600 mm Fork Length: 1150 mm
32	HAND PALLET	<ul style="list-style-type: none"> ● Brand - Voltas Model – TMW-25 Specifications: TMW 25 Cap. – 2500 kgs Length – 1220 mm Width – 685mm

Section		
Welding and Cutting Tools		
Sr. No.	Equipment Name	Equipment detail
33	Arc Welding Machine	<ul style="list-style-type: none"> Brand – Electra KokoTawa Model – ARC-250 Specifications: Voltage: 220 V, Insulation Class: F Rated Output Voltage:30 V Frequency: 50/60 Hz Efficiency: 85 % Protection Class: IP23 Output Current Range: 20-250 A Rated Input Current: 43 A Rated Input Power: 9 KVA
34	Arc Welding Machine	<ul style="list-style-type: none"> Brand – Electra KokoTawa Model – ARC-250 Specifications: Voltage: 220 V, Insulation Class: F Rated Output Voltage:30 V Frequency: 50/60 Hz Efficiency: 85 % Protection Class: IP23 Output Current Range: 20-250 A Rated Input Current: 43 A Rated Input Power: 9 KVA
35	Spot welding machine	<ul style="list-style-type: none"> Brand – SMC Model – 15 kva Specifications: 15 KVA I/II Phase Transformer Base Without Timer
36	Wood Turning Machine	<ul style="list-style-type: none"> Brand – Agile Model – 15 kva Specifications: Length of the bed- 6 Feet Width of the bed- 8.5 inch Height of Center- 8 inches Admit between center- 48 inch Approx Spindle Speed- 700/1400/2800 RPM Face Plate Dia- 7.5 inch Power Required- 1 H.P./1400RPM Approx Weight of Machine- 350kg 2 Turning Tools, 2 Parting tools with mc complete with starter, starter, motor, pulley, and v belts
37	Wood Turning Machine	<ul style="list-style-type: none"> Brand – Agile Model – 15 kva Specifications: Length of the bed- 6 Feet Width of the bed- 8.5 inch Height of Center- 8 inches Admit between center- 48 inch Approx Spindle Speed- 700/1400/2800 RPM Face Plate Dia- 7.5 inch Power Required- 1 H.P./1400RPM Approx Weight of Machine- 350kg 2 Turning Tools, 2 Parting tools with mc complete with starter,

		starter, motor, pulley, and v belts
38	Plasma Cutting Machine	<ul style="list-style-type: none"> ● Brand – Agile Model – 15 kva Specifications: Electra KPT 10:Power parameter: Phase 3 50/60Hz, 0.4 M pa 0.55 M pa (Air Pressure) No-load voltage: 270V, Rated working range: 120V, Non-contract mode, IP21S (Protection degree of enclosure).

Prototyping Facility		
Section		
Sr. No.	Equipment Name	Equipment detail
39	PCB Prototype Machine	<ul style="list-style-type: none"> ● Brand – Roland Model – MDX-50 Specifications: Machined surface: single/double Z-axis zero options both manual and automatic Real-time step by step control through PC using USB Workable board: 300*300mm Max. speed: 8000mm/min Working speed: 0-4000mm/min Working accuracy: 6-8mil Least line diameter and least line spacing: 6-8mil Drilling depth: 0.02 ~ 3mm Drilling diameter: 0.4 ~ 3.175mm Drilling holes: 40-100/min Repeat Accuracy: 0.025mm The least error of Data control drill less than 1mil(0.015mm) Means of communication with PC : USB Function Request: Protel PCB document can be directly put in. (Gerber) Spindle speed: 24000rpm Spindle power: 800W Power supply: AC210-240V Volume: 750X750X750mm Gross: 90Kg. Software Provided With the Machine: Mach 3 Copper Cam
40	3D printer	<ul style="list-style-type: none"> ● Brand – Markforged Model – BFB04512HHSA Specifications: LAYER RESOLUTION: 100 microns or lower Suitable software features Single Sign-On, Two-Factor Authentication, Early Access to New Features, Organization Admin Portal. Polymers such as Nylon white, Onyx, etc. Fiber Materials: HSHF Fiberglass (High-Strength High-Temperature Fiberglass), Carbon Fiber, Fiberglass, Kevlar. Software Delivery: SaaS (Software as a Service) deployment and storage, Local Storage. Cabinet to be included with the printer. Starting consumables such as (Onyx spool, Carbon Fiber, Fiberglass, Kevlar, etc.) Build Volume: 320mm X 132mm X 154mm

41	High Temperature Furnance	<ul style="list-style-type: none"> ● Brand – Nabertherm Model – LT 5/13 Specifications: Tmax in °C -1300 Inner dimensions in mm- W-200 D-170 H- 130 Volume (in l)- 5 Outer dimensions 2 in mm- W- 490 D- 450 H- 580-320 Temperature uniformity of +/- 5K in the empty workspace5 W- 170 D- 100 H- 80 Connected load (in kW)- 2.4 Electrical connection- 1 Phase
42	Pillar Drilling Machine	<ul style="list-style-type: none"> ● Brand – Electra KokoTawa Model – ARC-250 Specifications: Voltage: 220 V, Insulation Class: F Rated Output Voltage:30 V Frequency: 50/60 Hz Efficiency: 85 % Protection Class: IP23 Output Current Range: 20-250 A Rated Input Current: 43 A Rated Input Power: 9 KVA
43	Pillar Drilling Machine	<ul style="list-style-type: none"> ● Brand – Electra KokoTawa Model – ARC-250 Specifications: Voltage: 220 V, Insulation Class: F Rated Output Voltage:30 V Frequency: 50/60 Hz Efficiency: 85 % Protection Class: IP23
44	Dell Computer	<ul style="list-style-type: none"> ● Brand – Dell Model – INS 3910 Specifications: intel Core i7 12th Gen Processor/16GB RAM /256GB SSD/ HDD 1TB/4GB Graphic Card / Wired Keyboard and Mouse/ 22" display/ Win 11 + MS Office
45	Dell Computer	<ul style="list-style-type: none"> ● Brand – Dell Model – INS 3910 Specifications: intel Core i7 12th Gen Processor/16GB RAM /256GB SSD/ HDD 1TB/4GB Graphic Card / Wired Keyboard and Mouse/ 22" display/ Win 11 + MS Office
46	Dell Computer	<ul style="list-style-type: none"> ● Brand – Dell Model – INS 3910 Specifications: intel Core i7 12th Gen Processor/16GB RAM /256GB SSD/ HDD 1TB/4GB Graphic Card / Wired Keyboard and Mouse/ 22" display/ Win 11 + MS Office
47	Dell Computer	<ul style="list-style-type: none"> ● Brand – Dell Model – INS 3910

		<p>Specifications: intel Core i5 12th Gen Processor/16GB RAM /256GB SSD/ HDD 1TB/4GB Graphic Card / Wired Keyboard and Mouse/ 22" display/ Win 11 + MS Office</p>
48	Dell Computer	<ul style="list-style-type: none"> ● Brand – Dell Model – INS 3910 Specifications: intel Core i5 12th Gen Processor/16GB RAM /256GB SSD/ HDD 1TB/4GB Graphic Card / Wired Keyboard and Mouse/ 22" display/ Win 11 + MS Office
49	Dell Computer	<ul style="list-style-type: none"> ● Brand – Dell Model – INS 3910 Specifications: intel Core i5 12th Gen Processor/16GB RAM /256GB SSD/ HDD 1TB/4GB Graphic Card / Wired Keyboard and Mouse/ 22" display/ Win 11 + MS Office