



मैकेनिकल अभियंत्रण विभाग

मोतीलाल नेहरू राष्ट्रीय प्रौद्योगिकी संस्थान इलाहाबाद,

प्रयागराज -211004, उत्तर प्रदेश, भारत

**Mechanical Engineering Department**

**Motilal Nehru National Institute of Technology Allahabad,  
Prayagraj -211004, Uttar Pradesh, India**

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## **Laboratory Facilities**

- 1. Measurement lab**
- 2. Metrology lab**
- 3. Machine Tool & Advanced Machining Lab**
- 4. Advanced Manufacturing Lab**
- 5. Internal Combustion Engine Lab**
- 6. Steam Power Engineering Lab**
- 7. Refrigeration & Air Conditioning Lab**
- 8. Automobiles Engineering Lab**
- 9. Industrial and Engine Tribology Lab**
- 10. Heat and Mass Transfer Lab**
- 11. Solar Energy Lab**
- 12. Composite Manufacturing Lab**
- 13. Engineering Graphics Lab**
- 14. Product Development Lab**
- 15. Rotor dynamics and Diagnostics Lab**
- 16. Foundry, Forming and Plastics Lab**
- 17. Computer Aided Design Lab**
- 18. Computer Aided Manufacturing Lab**
- 19. Mechatronics and Control Lab**
- 20. Machine Elements Lab**
- 21. Mechanical Workshop**

## MAJOR EQUIPMENTS

### Universal Tool and Cutter Grinder



#### Contact:

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Email: [anarayan@mnnit.ac.in](mailto:anarayan@mnnit.ac.in)

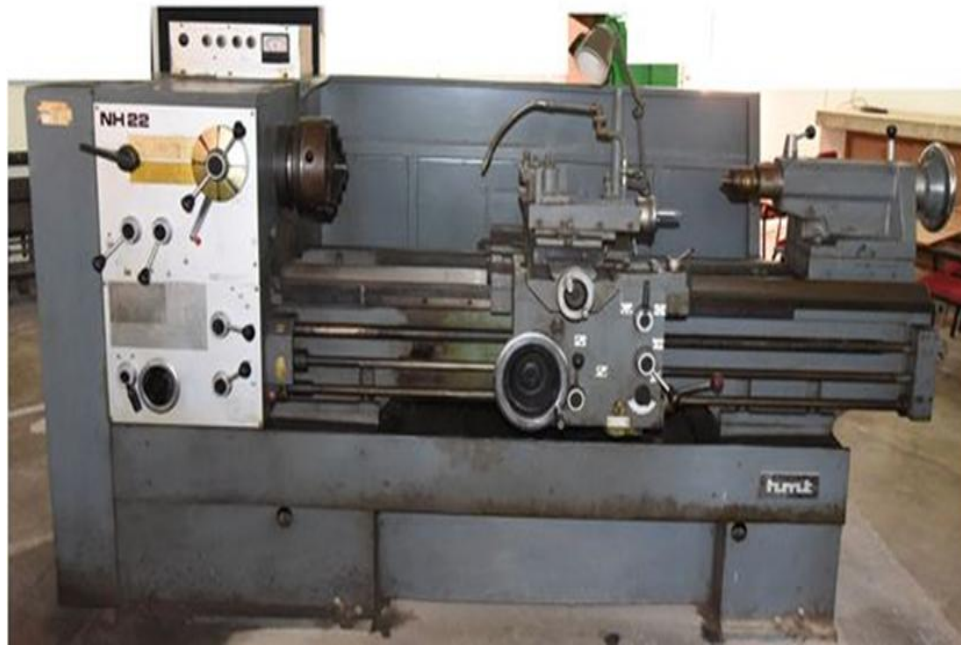
#### Specifications:

Make: Germany Model: SWV-200

#### Outcomes/Applications:

- Used to sharpen milling cutters and tool bits.
- Used to perform a variety of grinding operations: surface, cylindrical, or complex shapes

## High Speed Precision Production Lathe



### Contact:

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### Specifications:

- Make and Model: HMT, NH22
- Max job dia.= 500 mm
- Speed range = 40-2040 RPM

## Die Sinking Electric Discharge Machine



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### Specifications:

- Make and Model: Electronica, ELEKTRA,
- Work head: travel of quill=250 mm
- Dial gauge accuracy=0.02 mm, Depth of throat=340 mm,
- Max. load lifting capacity=15 kg, Mounting surface:500x300 mm<sup>2</sup>,
- Max. workpiece height=175 mm, max. workpiece weight=175 kg
- Longitudinal travel (x axis)=280 mm, transverse travel (y-axis)=200 mm,

### Outcomes/Applications:

- Used to process complex cavities and curved surfaces of various electrical conductors such as various molds and precision parts.
- It has the characteristics of high processing precision, high smoothness and fast speed.

## Box Type Column Drilling Machine



### Contact:

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### Outcomes/Applications:

- To Facilitate the machining of workpieces immensely
- Used to drill in metal, plastic and wood.

## Nd-YAG Laser Beam Machine



### Contact:

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### Specifications:

Make: Suresh India Laser (Pune) Model: SIL 200

### Outcomes/Applications:

- Used in manufacturing for engraving, etching, or marking a variety of metals and plastics, or for metal surface enhancement processes like laser peening.
- Used for cutting, drilling and micromachining of different materials (metals, alloys, ceramics and composites)

## Surface Roughness Tester



### Contact:

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### Specifications:

Make: Mitutoyo Japan, Model: SJ410

### Outcomes/Applications:

- Used to quickly and accurately determine the surface texture or surface roughness of a material.
- Shows the measured roughness depth (Rz) as well as the mean roughness value (Ra) in micrometers or microns ( $\mu\text{m}$ ).

## Tool Makers Microscope



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### Specifications:

Make: Radical, Model: RTM-900

### Outcomes/Applications:

- It is used in shop floor inspection of screw threads, gears, and other small machine parts.
- Its application includes precision measurement of test tools in tool rooms.
- It helps determine the dimensions of small holes, which cannot be measured with micrometres and callipers



## Micro Hardness Tester



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### Specifications:

Model: RMHT-201

### Outcomes/Applications:

- Determine the hardness of small or thin specimens and small areas of larger specimens.
- Determine characteristics of thin sheets, foils, fine wire, epoxies, paints, etc. and is often employed in R&D applications where a material's microstructure is of interest.
- Determining hardness variations caused by hardening, quenching, plating, fabrication, welding or annealing, bonding, etc.

## CNC Wire Cut EDM Machine



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### Specifications:

- Diameter of molybdenum wire  $\phi$  0.15~ $\phi$  0.20mm
- Max cutting accuracy (Material Cr12 hardened, 40mm thick) > 160 mm<sup>2</sup>/min, surface finish  $Ra \leq 2.5\mu\text{m}$

### Outcomes/Applications:

- Prototype production.
- Automotive parts.
- Aerospace parts.
- Medical devices for implantations.
- Prototypes.
- Small hole drilling.
- Blanking punches.

## ZNC Die Sinking EDM



### Contact:

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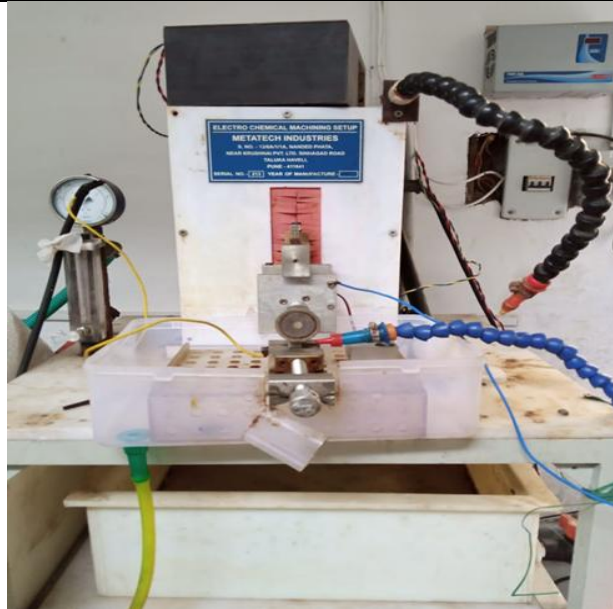
### Specifications:

- Operating platform(mm) 300 × 450
- Operating groove (mm) 850 × 560 × 320
- Electric pole carrying capacity (kg) 50
- Maximum bottom surface quality Ra 0.4 μm
- Minimum electrode loss 0.2%

### Outcomes/Applications:

- Used to process complex cavities and curved surfaces of various electrical conductors such as various molds and precision parts.
- It has the characteristics of high processing precision, high smoothness and fast speed.

## ECM



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### Specifications:

- Tool Area mm- 300 square mm
- Cross head Stroke -40mm or 75 mm
- Efficiency - More than 80% at partial and full load conditions.

### Outcomes/Applications:

- Die-sinking operations.
- Drilling jet engine turbine blades.
- Multiple hole drilling.
- Machining steam Turbine blades within close limits.
- Micro machining.
- Profiling and contouring.
- Rifling barrel

## Pin on Disc Wear & Friction Monitor



### Contact:

Name: **Dr. S. B. Mishra**

Phone: **0532-227-1518(O)**

Email: **[sbmishra@mnnit.ac.in](mailto:sbmishra@mnnit.ac.in)**

### Specifications:

- Specimen- Pin Size : 3,4,6,8,10 & 12 mm dia.; 25 to 32 mm long
- Specimen Holder:  $\varnothing$  3,4,6,8,10 & 12 mm cylindrical pins for
- Wear Disc Size: dia. 165mm, 8mm Thick,
- Wear Track dia: Max : 140 mm
- Disc rotation- Min: 200 rpm, Max : 2000 rpm
- Sliding speed- 0.5 to 10 m/sec, Normal load:- Min : 5 N, Max : 200 N

### Outcomes/Applications:

Used to evaluate the performance of a “wear couple” or to characterize the performance of different materials against a standard surface.

## Air Jet Erosion Test Rig



### Contact:

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### Specifications:

- Fluid (Air): Pressure 2 bar, Velocity: Max 100m/s
- Specimen Size: 25x25x5mm
- Material: EN-8 steel & stainless steel 304, Temperature: 900°C
- Angle of impingement 15° 30° 45° 75° & 90°
- Nozzle Size ID:1.5mm / OD:15mm x50mm long

### Outcomes/Applications:

- Air Jet Erosion Tester is a machine that allows users to conduct standard tests in accordance with ASTM G76 and G211-14.
- This test method covers the determination of material loss by gas-entrained solid particle impingement erosion with jet nozzle type erosion equipment.

## Journal Bearing Demonstration Apparatus



### Contact:

Name: **Dr. S. B. Mishra**

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### Specifications:

- Shaft dia.- 39.955 mm
- Radial Load- 750 N max
- Speed range- 150-2000 rpm
- Test bearing- 40.150 mm

### Outcomes/Applications:

This apparatus helps to demonstrate and study the effect of important variables such as speed, viscosity and load, on the pressure distribution in a Journal.

## Stefan Boltzmann Apparatus



**Contact:**

**Name:** [Dr. Ashwani Kr. Yadav](#)

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**Outcomes/Applications:**

STEFAN BOLTZMAN APPARATUS Designed to determine the Stefan Boltzmann constant



## Thermal conductivity of Metal Bar Apparatus



**Contact:**

**Name:** [Dr. Ashwani Kr. Yadav](#)

**Email:** [ashwini@mnnit.ac.in](mailto:ashwini@mnnit.ac.in)

**Outcomes/Applications:**

Used to determine the thermal conductivity of metal rod

## Heat Exchanger Apparatus



**Contact :**

**Name:** [Dr. Ashwani Kr. Yadav](#)

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**Outcomes/Applications:**

Performance of heat exchanger viz. LMTD, heat transfer rate and heat transfer coefficient can be determined.

## Thermal Conductivity of insulating powder apparatus



**Contact:**

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**Outcomes/Applications:**

Determine the thermal conductivity of an insulating powder.

## Lagged Pipe Apparatus



**Contact :**

**Name:** [Dr. Ashwani Kr. Yadav](#)

**Email:** [ashwini@mnnit.ac.in](mailto:ashwini@mnnit.ac.in)

**Outcomes/Applications:**

The apparatus is designed to study the lagging phenomenon that provides insulation to prevent heat diffusion from pipe.

## Forced Convection Apparatus



**Contact:**

**Name:** [Dr. Ashwani Kr. Yadav](#)

**Email:** [ashwini@mnnit.ac.in](mailto:ashwini@mnnit.ac.in)

**Outcomes/Applications:**

To demonstrate the use of extended surface to improve heat transfer from the surface.

## Drop and Film wise condensation apparatus



### Contact:

Name: **Dr. Ashwani Kr. Yadav**

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### Outcomes/Applications:

Used for determining and compare surface heat transfer coefficient for Drop wise condensation and film wise condensation. We offer product to our patrons in recommended specifications and at affordable rates.

## Free Convection Apparatus



**Contact:**

**Name:** Dr. Ashwani Kr. Yadav

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**Outcomes/Applications:**

Used to find Nusselt number for the free convection from a vertical hot bar.

## Hot Air Oven



### Contact:

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### Specifications:

- Capacity: 240L
- Temperature: 400<sup>o</sup>C

### Outcomes/Applications

- It is used to dry glassware, sterilize N95 masks, general instruments, and packaging items in life science, microbiology laboratory.
- It is also used in chemical and pharmaceutical industries, food and beverage industries, textile industries.



## Electronic Balance



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### Specifications:

- Min. Capacity: 0.1g
- Max. Capacity: 220 g.
- Accuracy: 0.1mg

### Outcomes/Applications:

- Electronic balance is an instrument used in the accurate measurement of weight of materials.
- Electronic balance is a significant instrument for the laboratories for precise measurement of chemicals which are used in various experiments.
- Laboratory electronic balance provides digital result of measurement.

## ATL 3D Printer



### Contact:

**Name:** [Dr. Bhore Skylab P.](#)

**Phone:** [8934049275](tel:8934049275)

**Email:** [skylabpbhore@mnnit.ac.in](mailto:skylabpbhore@mnnit.ac.in)

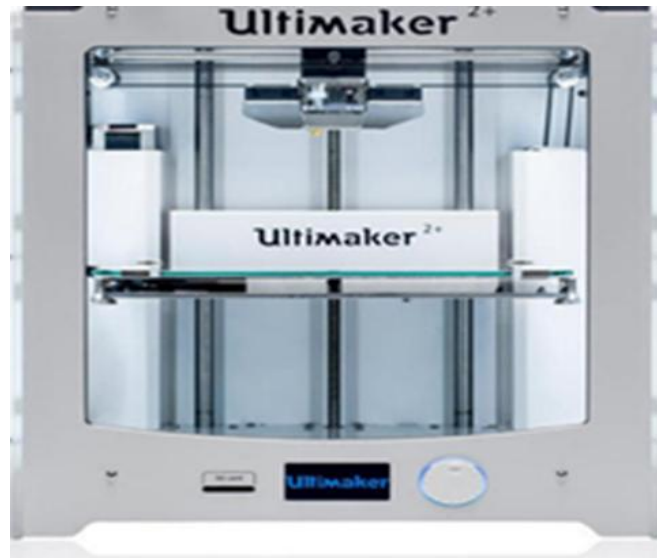
### Specifications:

- Maximum Built Volume: 250mm x 280mm x 250mm
- Extruder: Single Nozzle Size- 0.4mm (changeable)
- Printing Temperature: 180°C to 260°C
- Layer Thickness: 4mil | 0.004 inches | 100 microns | 0.10 mm
- Nozzle Heat up time: less than 2 mins
- Technology: Fused deposition modeling (FDM)
- Printing Speed: 30mm/s to 100mm/s
- Display: Full Graphics LC-Display (128x64)

### Outcomes/Applications

- Uses computer-aided design (CAD) to create three-dimensional objects through a layering method.
- Sometimes referred to as additive manufacturing, 3D printing involves layering materials, like plastics, composites or bio-materials to create objects that range in shape, size, rigidity and color.

## Ultimaker 2+ 3D Printer



### Contact:

**Name:** Dr. Bhore Skylab P.

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**Email:**[skylabpbhore@mnnit.ac.in](mailto:skylabpbhore@mnnit.ac.in)

### Specifications:

- Build volume:223x223x205 mm, Filament diameter:2.85 mm
- Layer resolution: 0.25mm , nozzle: 60 - 150 micron
- Print head travel speed: 30 - 300 mm/s, Build speed: < 8 mm<sup>3</sup>/s
- Nozzle diameter: 0.25, 0.4, 0.6 and 0.8 mm
- Nozzle temperature:180 - 260 °C, Nozzle heat up time: 1 min
- Operating sound: 50 Dba

### Outcomes/Applications:

With its networking capabilities and new touchscreen, the Ultimaker 2+Connect delivers single extrusion for simple applications.

## Rapid Moisture Tester



### Contact:

Name: **Dr. V. R. Komma**

Phone: **9412979763**

Email: **[kvrao@mnnit.ac.in](mailto:kvrao@mnnit.ac.in)**

### Outcomes/Applications:

- To determine the moisture content quickly in fresh sand and moulding sand.
- To quickly determine the water content at site.

## Sand Siever



### Contact:

Name: **Dr. V. R. Komma**

Phone: **9412979763**

Email: [kvrao@mnnit.ac.in](mailto:kvrao@mnnit.ac.in)

### Outcomes/Applications:

- Used for sifting sand or other particles in order to sort the particles according to size.
- Used to determine the relative composition of sand or composite sediment according to particle size.

## Universal Strength Machine



### Contact:

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Email: [kvrao@mnnit.ac.in](mailto:kvrao@mnnit.ac.in)

### Specifications:

- Compression Strength: 50 Kg/cm<sup>2</sup>
- Shear Strength: 40 Kg/cm<sup>2</sup>
- Tensile Strength: 100 Kg/cm<sup>2</sup>
- Transverse Strength: 300 Kg/cm
- Motor: 6HP, Single Phase, Cycles 50
- Load cell (0-1000 Kg): 1000 Kg

### Outcomes/Applications:

Used to test the tensile strength and compressive strength of materials.

## Electric Permeability Tester



### Contact:

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### Specifications:

- RPM: 8000
- Current : 1.5 A
- Fuse 2 A
- Speed regulator 230V, Single Phase
- Pressure Gauge 0-100mmWC

### Outcomes/Applications:

Used to determine porosity in raw sand, green and nobake sand.

## HMT CNC T-70 Trainmaster Lathe



### Contact:

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### Specifications:

- Height of centers: 70 mm
- Distance between center: 310 mm
- Swing over bed: 100 mm,
- Swing over cross slide: 60 mm
- Traverse of cross slide: 55 mm
- Programmable feed rate: 1-699 mm/min
- Mechanical resolution: 0.01 mm
- Spindle Speed range: 50-3200 RPM,

### Outcomes/Applications:

- CNC (computer numerical controlled) Lathe machines assist in removing metals from the workpiece to make a desired part for production.
- They are fully controlled by computer programs and make manufacturing jobs much easier to process as less supervision is required.



## HMT CNC Trainmaster Vertical Machining Centre (VMC200)



### Contact:

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### Specifications:

- Table size: 420 mm x 125 mm, longitudinal axis travel: 200 mm
- Cross axis travel: 125 mm, Vertical axis travel: 200 mm
- Spindle motor: 0.44 kW, Speed range: 200-2000 RPM
- Manual tool change, Programmable feed rate: 1-699 mm/min
- Mechanical resolution: 0.01 mm
- Speed range: 50-3200 RPM,

### Outcomes/Applications:

- These machines are primarily utilized to turn raw blocks of metal, such as aluminum or steel, into machined components.
- Used to perform a variety of machining operations, including, but not limited to, the following: cutting, drilling, tapping, countersinking, chamfering, carving, and engraving.

## TRIAC CNC Milling Machine



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### Specifications:

- Table size: longitudinal axis travel: 290 mm
- Cross axis travel: 170 mm
- Vertical axis travel: 235 mm
- Spindle motor: 0.37 kW
- Speed range: 100-2500 RPM
- Spindle Taper BT35, Manual tool change
- Programmable feed rate: 0-1000 mm/min
- Mechanical resolution: 0.01 mm
- Speed range: 50-3200 RPM

### Outcomes/Applications:

Used for milling non-hardened ferrous metals, aluminum, hard woods and plastics.

## Mitsubishi Move Master II RM-501 5 Axis Robotic Arm with Electric Gripper



### Contact:

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### Specifications:

- Robot unit: five degrees of freedom vertical multi joint type
- waist rotation: 300 degree, Shoulder rotation: 130 degree
- Elbow rotation: 90 degree, wrist pitch:  $\pm 90$  degree
- wrist roll:  $\pm 180$  degree
- permissible handling weight: maximum 1.2 kg
- maximum synthesis speed 400 mm/s (wrist tool surface) position repeat
- accuracy  $\pm 0.5$  mm
- 24V DC servo motors on each axis
- Software: MACH3 – CNC control software

### Outcomes/Applications:

It is used for tasks such as assembling products or handling chemicals.

## Yaskawa Motoman Six Axis Robot Manipulator HP3 with NX100 Controller



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### Specifications:

- Payload: 3 kg, Repetitive position accuracy:  $\pm 0.08$  mm
- Range of motion S axis: ( $\pm 170$  degrees), L axis (+150, -90 degrees), U axis (+250, -175 degrees), R axis ( $\pm 180$  degrees), B axis (+225, -45 degrees), T axis ( $\pm 360$  degrees)
- AC Servo motors, Pneumatic gripper
- NX100 controller with programming pendant and Robot programming language INFORM-III

### Outcomes/Applications:

- Used to perform a wide variety of material handling applications.
- Motoman robot can also be used in assembly and pick and place applications

## PND-320 CNC Turning Center



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### Specifications:

- Swing diameter over bed: 320 mm, Swing diameter over top slide: 160 mm
- Traverse in X axis: 200 mm, Traverse in Z axis: 600 mm
- Spindle motor AC variable speed, Spindle motor power: 15 kW
- Speed range: 100 to 3150 RPM, rapid traverse: 10,000 mm/min
- Tool turret with 8 number of stations,

### Outcomes/Applications:

The machine is ideally suited to produce large volumes of small size components, for job shops, automotive component production and tool room applications like punches and dies and hard turning.

## Servo Hydraulic Nano Plug and Play Machine



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### Outcomes/Applications:

- Used for mechanical testing of materials.
- The machine serves the requirements as per prevailing international standard practices for the characterization of mechanical properties like tensile, compression, flexural, fatigue crack propagation, fatigue life and fracture toughness. Along with specific fixtures, it is also useful for several industrial applications like testing of wire ropes, chains, packaging material etc.

## Rheometer



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### Outcomes/Applications:

- Used to measure the way in which a liquid, suspension or slurry flows in response to applied forces.
- It is used for those fluids which cannot be defined by a single value of viscosity and therefore require more parameters to be set and measured than is the case for a viscometer.

## Dynamic Mechanical Analyzer



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### Outcomes/Applications:

Used to study and characterize materials. It is most useful for studying the viscoelastic behavior of polymers.



## High Speed Precision Lathe Along with Standard Accessories



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### Specifications:

- Capacities: Height of centres: 220mm
- Type of bed (Standard): Straight
- Swing over bed: 500mm
- Swing over carriage wings: 480mm
- Swing over cross-slide: 270mm
- Width of bed: 415mm
- Distance between centres: 1000mm
- Carriage travel: 900mm
- Head Stock: Spindle nose/bore (Standard): A2-6/52mm
- Camlock 6/53mm
- Spindle socket taper: Metric 60/53mm bore
- ASA 350/80mm bore

### Outcomes/Applications:

Suitable for a wide range of turning applications.

## Hydraulic Vertical Surface Grinder



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### Specifications:

- Dimensions of table clamping area 300 mm x1500 mm
- Longitudinal table travel 2050 mm, Dia. of grinding wheel 320 mm
- Max. width of grinding 300 mm, Taper of grinding spindle 1:05
- Dimensions of grinding stones 25 mm x80 mm x150 mm
- Dia. of piston for longitudinal table travel 63.5(2 1/2") mm
- Maximum load on table 400 Kg. Speed spindle 1440rpm
- Speed of longitudinal table feed: 2-16m/min

### Outcomes/Applications:

- Used to provide precision ground surfaces, either to a critical size or for the surface finish.
- It is a widely used abrasive machining process in which a spinning wheel covered in rough particles (grinding wheel) cuts chips of metallic or nonmetallic substance from a work-piece, making a face of it flat or smooth.

## HMT High Speed Precision Lathe Machine with Standard Accessories



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### Specifications:

- Height of center: 260 mm, Swing over bed: 575 mm
- Swing over carriage: 545 mm, Swing over cross slide: 350 mm
- Swing in gap: 800 mm, Distance between centres: 1500 mm
- No. of Spindle Speed (in forward): 16,
- Range of Spindle Speed (in forward): 40-2040 RPM
- Range of Spindle Speed (in reverse): 60-2375 RPM
- No. of Feed 27, Cross Slide Travel 800 mm
- Range of Feed (Longitudinal): 0.24-2.24 mm/rev
- Range of Feed (Cross) 0.02-1.12 mm/rev

### Outcomes/Applications:

- A speed lathe is a type of lathe that is designed to operate much faster than its common counterpart.
- Used for small tasks such as finishing an object or removing burs left over from earlier manufacturing steps.

## Universal Milling Machine with All Standard Accessories



### Contact:

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### Specifications:

- Table size 1100mm×275mm
- Power operated longitudinal traverse 650mm
- Power operated cross traverse (without over arm brace) 225mm
- Power operated cross traverse (with over arm brace) 145mm
- Power operated vertical traverse 365mm
- Min. Distance left hand table end to center of milling spindle 250mm
- Swivel of table (either side) 45°
- No. of spindle speeds 18

### Outcomes/Applications:

- Used to process different surfaces of small, low-weight parts, for piece-and serial production.
- Milling of parts and work pieces on the machines is performed using different milling cutter types, such as cylindrical, disc, end and angular milling cutters.

## Universal Milling Machine with All Standard Accessories



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### Specifications:

- Overall dimensions (LxW) 1520x310 mm, Clamping area (LxW) 1350x310 mm, Power operated table traverses – Longitudinal 800 mm
- Power operated table traverses – Cross 265 mm, Power operated table traverses – Vertical 400 mm
- Number of feeds 18, Feed range longitudinal and cross 16-800 mm/min

### Outcomes/Applications

- Used to process different surfaces of small, low-weight parts, for piece-and serial production.
- Milling of parts and work pieces on the machines is performed using different milling cutter types, such as cylindrical, disc, end and angular milling cutters.

## High Speed Capstan Lathe with Standard Accessories



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### Specifications:

- Collet Chuck capacity Automatic Operation Round Stock 32mm
- Hexagon Stock 28mm, Square Stock 26mm
- Hand Bar feed and Power Chucking Round Stock Hexagon Stock 38 mm
- Square Stock 32 mm, 26 mm, Spindle Hole 52 mm
- No. Spindle Speeds 8, Range of Spindle Speeds 80-2000 RPM
- Height of center over bed 200 mm, Swing over bed 410 mm
- Swing over carriage 350 mm, Swing over cross slide 200 mm
- Length of Bed 1400 mm

### Outcomes/Applications

- Used for shorter workpiece because of limited ram movement.
- Used for machining workpiece up to 60 mm diameter.

## Radial Drilling Machine with Standard Accessories



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### Specifications:

- Drilling capacity in steel 50mm, Drilling rough bore in steel 90mm
- Drilling Depth 325mm, No. of spindle speeds 12
- Range of spindle speeds 40-1700 rpm No. of spindle feeds 6
- Range of spindle feeds 0.121.2 mm/rev
- Max./Min. Drilling radius 1075/500 mm,
- Max. Drilling head traverse 575mm

### Outcomes/Applications:

- Used to drill mediums to large and heavy workpieces.
- Used to drill holes in a given radial distance. |
- Used when the component's size is larges in height.
- Primarily designed for drilling holes in heavy jobs or workpieces.

## Shaping Machine with Accessories



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### Specifications:

- Length of stroke 675mm, Max. Horizontal travel of table 590mm
- Max. Vertical travel of table 255mm, Minimum Distance from table to Ram 80mm
- Maximum Distance from table to Ram 250mm, Max. Vertical travel of tool slide 160mm
- Length and Width of table 585x330mm, Height of table slide 365mm
- Number of Ram cycles per minute 400%, Range of Ram cycles per minute 12 to 75 (12,19,37,75)
- Feed per pick up 0.12mm

### Outcomes/Applications:

- To generate straight and flat surfaces.
- To smooth rough surfaces. To make internal splines.
- To make gear teeth. To make dovetail slides.
- To make keyways in pulleys or gears.



## Heavy Duty Planer Grade 1 with Standard Accessories



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### Specifications:

- Length of bed 3581mm
- Length of table 1829mm
- Max. Traverse of table 1829mm
- Max. possible height 864mm
- Max. planing width 864mm
- No. of tool boxes on cross rail 1 or 2
- Cutting speed per minute 9754
- Return speed per minute 19475

## Wood Working Lathe with ½ HP Motor



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### Outcomes/Applications:

- Used in woodturning, metalworking, metal spinning, thermal spraying, parts reclamation, and glass-working.

## Computerized Single Cylinder Diesel Engine



### Contact:

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### Specifications:

Engine – Mahindra Jeeto

Brake Power - 11HP

Cooling – Water Cooled

Dynamometer – Eddy Current dynamometer

### Outcomes/Applications:

- Used in woodturning, metalworking, metal spinning, thermal spraying, parts reclamation, and glass-working.

## Multi Cylinder Kirloskar Diesel Engine



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### Specifications:

Engine – Kirloskar  
Rated Power – 60 HP @ 3500 rpm  
Fuel – Diesel  
No of Cylinders – Four  
Starting – Self start  
Working Stroke – Four Stroke  
Cooling – Water Cooled  
Orifice diameter – 1”  
Arm Length – 96.5 cm

### Outcomes/Applications:

- Performance test at constant load
- Performance test at constant Speed Willan's line method

## Computerized Single Cylinder 4 Stroke Petrol Engine



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### Specifications:

Engine – Bajaj

Max Power – 5 Hp

Compression Ratio- 9

Bore (mm)- 57

Stroke (mm)- 68

Fuel – Petrol

No of Cylinders – One

Starting – Self start

Working Stroke – Four Stroke

Cooling – Water Cooled

### Outcomes/Applications:

- Performance test at constant load
- Performance test at constant Speed Heat Balance sheet

## Bomb Calorimeter



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### Specifications

Make: Parr

Model: 6200

Technical Details:

- Isooperibol calorimetry
- Removable Oxygen Vessel and Bucket
- 4-8 tests per hour
- Operator time per test is approximately 6 minutes
- 0.05 – 0.1% precision class instrument
- 0.0001 °C Temperature Resolution
- 52 – 12000 calorie sample range

### Outcomes/Applications

- Calorific Value of Solid and Liquid fuel