Engineering Design Workshop

Engineering Design workshop is a common facility for all the students of engineering design. It provides the basic manufacturing facilities for students to fabricate prototypes, especially during their final year project work. Students can create CAD models of their design and then take the help of the technicians to do machining operations as well as fabrication of the products. Students are also allowed to use few standard machine tools. This facility is also used for advanced research in metal cutting.

The list of machine tools available in the workshop is listed below.

1. Vertical Machining Centre (HAAS Mini MILL)

Specification

Travels : X = 406mm Y= 305mm Z=254mm
Table : Length (Total) = 914 mm, Work surface Length =730mm Width = 305 mm.

Spindle : Speed = 6000 rpm, Taper size = BT or CT 40, Drive system = Belt drive.

Feed rates : Maximum Rapids = 15.2m/min, Maximum Cutting =12.7m/min.

Tool Changer : Capacity =10,
Max tool diameter =89mm, Max Tool Wight =4.5kg, Tool to tool=4.2sec.

Air required : 6.9 bar

Tolerance : +/-.005mm

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2. Vertical Machining Centre (AMS SUPER WINNER)

Table : 800mm * 400mm, T slot: N *W*P = 4*14*100

Travels : X = 500mm Y= 400mm Z=500mm

Spindle : nose Taper = 7/24 no 40, Speed= 60-6000 rpm, Rapid traverse X, Y&Z m/min =40*40*40

Tool Changer: Number of Tools - STD / OPT = Nos20, Chip To Chip Time =4.2 Sec

3. Turning Centre. (HAAS CNC)

Specification

Travels : X=200mm, Z=406mm

Capacities : Chuck Size =165mm, Max cutting Diameter=356mmMax cutting length =406mm.

Spindle : Bore =58.7mm, Max Speed=6000rpm, Max Torque=102Nm@1300rpm

Feed rates : Rapids on X=30.5m/min, Rapids on Z=30.5m/min

Turret : Number of tools =12-station BOT, Boring bar Rear clearance =19.1mm.

Swing Diameter : Max part diameter =419mm, Over Wedge =419mm

Air Required : 113 L/min@6.9 bar

Tolerance : +/-.005mm

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4. Surface Grinding (PROTH)

Specification

Grinding length	:	500 mm
Grinding width	:	250 mm
Work piece height	:	312 mm
Travel x / y	:	600x280 mm
Grinding wheel size	:	355x25x127 mm
Control unit	:	Conventional

5. Manual Lathe Machine (Pinacho)

Specification

Centre distance	mm	1,000
Centre height	mm	200
Swing over bed	mm	402
Swing over gap	mm	560
Swing over carriage	mm	335
Swing over cross slide	mm	245
Bed width	mm	250
Gap length in front of face plate	mm	120

Head Stock

Main spindle bore	mm	42
Main spindle nose	Type	A2 - 5 / Cam lock No 5
Main spindle Morse taper	No	4
No. of speed range	RPM	3 automatic (60 - 2,000)
Speed range	RPM	60 - 2,000
Speed range 1	RPM	60 - 140
Speed range 2	RPM	140 - 530
Speed range 3	RPM	530 - 2,000

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6. Laser Cutting Machine

Laser material possessing systems with computer interface can integrate computer generated drawing to machining, engraving and cutting operations .The lab has a desktop VLS2.30 laser machine from laser systems. The VLS2.30 is well suited to prototype development and offers a material processing envelope of 406mm*305mm* 102mm

Work aria : 406mm*305mm
Max part size : 476mm* 370mm * 102mm
Rotary capacity : Max diameter 127mm with 38.1 lens. Min diameter 25.4mm 51mm lens.
Z axis lifting capacity: 9kg
PC Connection : USB 2.0
Laser option : 10, 25and 30 watts.
Power requirements: 110V/10A 220V/5A

7. Drilling machine.

Drill Diameter Range 1 to 13mm.

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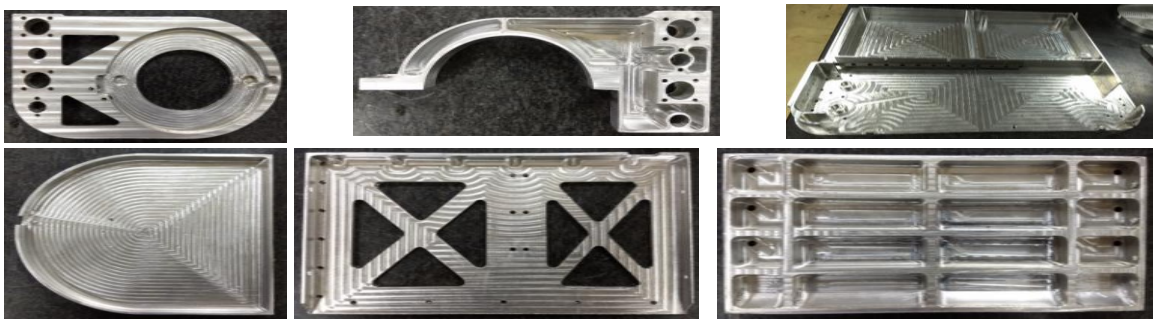
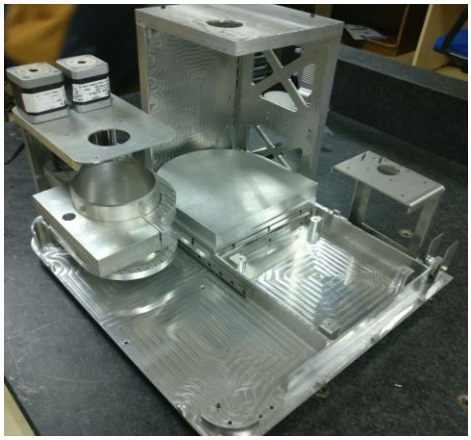
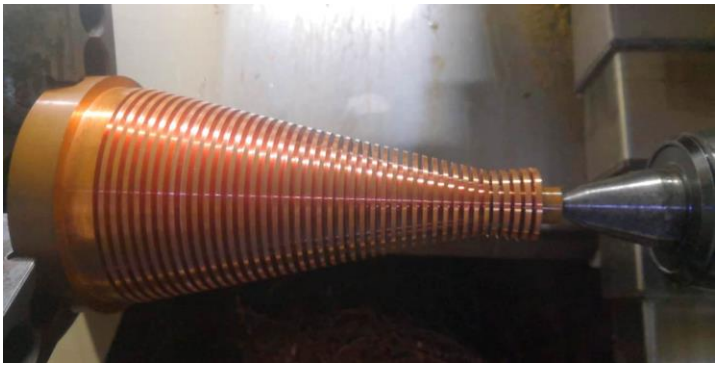
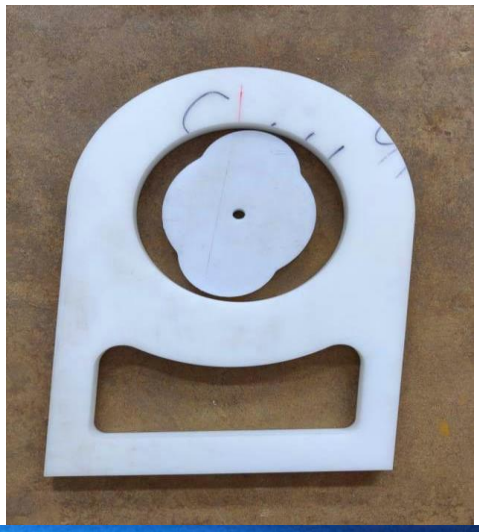
Some Sample, Completed work Images.

- To manufacture prototypes, components and experimental setups for the students and research scholars projects of our Department.









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