

MACHINE TOOLS LAB

Objective: The objective is to enable the students to understand parts of various machine tools and the operations that can be performed on them



Sections Handled: III A & B

Major Equipment Details:

S. No	Name of the Equipment	Quantity
1	Hydraulic power hacksaw	1
2	Light duty 4 ½” Lathe machine (with accessories)	3
3	All geared precision lathe machine (with accessories)	1
4	Capstan Lathe (gear head for chuck works)	1
5	Planning Machine	1
6	Radial Drilling machine	1
7	All geared shaping machine	1
8	All geared slotting machine	1
9	Surface grinding machine (with accessories)	1
10	Universal tool & cutter grinder (with accessories)	1
11	All geared horizontal universal milling machine (with accessories)	1
12	Cylindrical Grinding machine	1
13	¼” Boring bar	1
14	Parting tools 1/8”, 3/4”, 7/8”	1
15	Tap handle	1
16	½ x 4” H.S.S square tool	1
17	3/8 x 3” H.S.S square tool	1
18	¼ x 4” H.S.S square tool	1

19	3/8" Boring bar holder	1
20	1/4" Boring bar holder	1
21	M16 x 1.5mm Machine tap	1
22	M14 x 2mm Machine tap	1
23	M12 x 1.75mm Machine tap	1
24	Diamond dresser 1.5 CRT	1
25	1/2" Tool holder	1
26	12" Adjustable surface gauges	1
27	100mm Tmax Cutter	1
28	50mm Tmax Cutter	1
29	Collects (8mm, 10mm, 16mm, 20mm)	1
30	ISO 40 adopter	1
31	Adopter suitable for collet	1
32	End mill (8mm, 10mm, 16mm, 20mm)	1
33	M16 Adopter rod	1
34	Gear cutter	1
35	T – Cutter	1
36	Reamer 15mm, 20mm	1
37	TTM Tips	1
38	Diamond dresser stand for surface grinder	1
39	Steel 300 x 300 x 20mm Thickness	1

Lab In charge with qualification: - K. Pavan Kumar M.Tech

Lab Technical name with qualification: LVS Rajesh, ITI

Experiment list as per curriculum:

1. Perform step turning operation on the given work piece using Lathe machine
2. Perform taper turning operation on the given work piece using Lathe machine
3. Perform thread cutting and knurling operation on given work piece using Lathe machine
4. Machine various diameter holes on the given work piece using Radial Drilling machine and tapping.
5. Machine square groove on given work piece using Shaping machine
6. Obtain square block from a cylindrical work piece using Planning machine
7. Machine slots on the given work piece using Slotting machine
8. Machine spur gear teeth on the given work piece using Universal Milling machine

9. Perform surface finish operation on the given work piece using Surface Grinding machine
10. Grind a single point cutting tool by using tool and Cutter Grinding machine

Experiment list beyond the curriculum

1. Determination of shear angle in turning.
2. Study of chip formation in turning under varying cutting parameters