



**KARUNYA INSTITUTE OF TECHNOLOGY AND SCIENCES**  
(Declared as Deemed to be University under Sec. 3 of the UGC Act 1956)  
A CHRISTIAN MINORITY RESIDENTIAL INSTITUTION  
AICTE Approved & NAAC Accredited  
Karunya Nagar, Coimbatore - 641 114, Tamil Nadu, India

**DEPARTMENT OF MECHANICAL ENGINEERING**  
**MANUFACTURING TECHNOLOGY LABORATORY**  
**(Special Machines Lab)**

Machining is a manufacturing process in which a cutting tool is used to remove excess material from a workpiece. The material that remains is the desired part geometry. The cutting tool deforms the workpiece in shear and creates scrap called as the “chip”. As the chips fall off the workpiece, a new surface is exposed. This mechanical generation of chips can be carried out by single point or multi point cutting tools.

Manufacturing a part is not a simple task and requires a lot of accuracy. Many a time, this is not obtained by any of the direct methods from the molten metal. Hence, metal is obtained in a basic shape and size, which is then machined to the exact required size. The study of these metal removing operations is done under SPECIAL MACHINES LAB.

The lab sessions are intended to make the students understand the different operations in machines such as Shaper Machine, Drilling Machine, Milling Machine, Grinding Machine etc., by providing them with hands on training. The student will be provided with a raw metal piece, along with the dimensions of the required work to be machined. The SPECIAL MACHINES LAB exercises provide opportunities for direct study of the Machines and their operations.

**COURSE OBJECTIVES:**

To impart knowledge on

1. To explore various special machines.
2. To provide hands on experience on key slotting and gear cutting operations.
3. To instruct the machining operations like surface grinding, tapping and wire-cut EDM.

**COURSE OUTCOMES:**

After completing the course the student will be able to

1. Perform V-block by using Shaping machine.
2. Operate Milling machines for cutting various shapes.
3. Generate a keyway with Slotting Machine.
4. Design spur gear cutting operation using Gear hobbing machine.
5. Perform surface grinding operations to get flat workpieces.
6. Apply wire-cut EDM for generating various geometrical profiles.

### **Facilities available for regular class work, project, research and consultancy**

- ✓ Vernier Calipers
- ✓ Dial Indicator
- ✓ Vernier Height Gauge
- ✓ Machine Vice
- ✓ Milling Tool Dynamometer
- ✓ Hydraulic Tracer
- ✓ Automatic Lathe – GEETECH
- ✓ Universal Milling Machine UF1
- ✓ Vertical Milling Machine
- ✓ Surface Grinding Machine (Hydraulic)
- ✓ Heavy Duty Drilling Machine
- ✓ Shaping Machine
- ✓ Tool and Cutter Grinder
- ✓ Cylindrical Grinding Machine
- ✓ Radial Type Drilling Machine
- ✓ Gear Hobbing Machine
- ✓ Slotting Machine
- ✓ Capstan and Turret Lathe
- ✓ Center Lathe
- ✓ Pillar Type Drilling Machine
- ✓ Planer Machine

### **Industry matching equipment's**

- ✓ Automatic Lathe – GEETECH
- ✓ Universal Milling Machine UF1
- ✓ Vertical Milling Machine
- ✓ Surface Grinding Machine (Hydraulic)
- ✓ Heavy Duty Drilling Machine
- ✓ Shaping Machine
- ✓ Cylindrical Grinding Machine
- ✓ Radial Type Drilling Machine
- ✓ Gear Hobbing Machine
- ✓ Slotting Machine
- ✓ Capstan and Turret Lathe
- ✓ Pillar Type Drilling Machine
- ✓ Planer Machine

## Major equipment's



**Fig. 1 PLANER MACHINE**



**Fig. 2 GEAR HOBGING MACHINE**



**Fig. 3 GEAR HOBGING MACHINE**



**Fig. 4 SHAPER MACHINE (GEAR DRIVE)**



**Fig. 5 SURFACE GRINDING MACHINE**



**Fig. 6 MILLING MACHINE**



**Fig. 7 GEARED LATHE MACHINE**



**Fig. 8 RADIAL DRILLING MACHINE**

Lab In -Charge:

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Assistant Professor (S.G)

Lab Technician:

Mr. J. SAMUEL

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