

**WORKSHOP TECHNOLOGY**  
**BEG 148ME**

Year-I									Semester-I
Teaching Schedule Hours/week			Examination Scheme						Total Marks
			Final				Internal Assessment		
			Theory		Practical		Theory Marks	Practical Marks	
L	P	T	Duration	Marks	Duration	Marks			
1	3	-	-	-	-		20	80	100

**Course Objective:** To familiarize the students about the basic mechanical and plumbing workshop practices as well as brick works, using various hand tools and machine tools.

**Course Content:**

**1.0 Introductory Concepts** **(2 hrs)**

- 1.1 Introduction to the subject
- 1.2 Manufacturing Processes: Primary and Secondary forming processes
- 1.3 Mechanization and Automation

**2.0 Industrial Safety** **(1 hrs)**

- 2.1 Introduction
- 2.2 Concept of accident and its causes

**3.0 Bench Work and Fitting Shop** **(2 hrs)**

- 3.1 Introduction and familiarization with various hand tools used in bench shop and its applications
- 3.2 Sheet Metal Works Tools, Marking & Layout, Bending & Cutting Operations

**4.0 Machine Shop** **(2 hrs)**

- 4.1 Function of Machine Tools: Lathe, Power-saw, Milling Machine, Drilling Machine, Grinding Machine, Shaping Machine

**5.0 Welding Shop** **(3 hrs)**

- 5.1 Gas welding principle, equipment and types of flames
- 5.2 Arc welding, principle and equipment
- 5.3 Arc welding elements and gas welding rods.
- 5.4 Principle and application of brazing and soldering

**6.0 Plumbing Shop** **(3hrs)**

- 6.1 Types of pipe and its materials
- 6.2 Various fittings used in metal and non-metal pipes
- 6.3 Methods of bending

**7.0 Brick Works** **(2 hrs)**

- 7.1 Types of bricks and its applications
- 7.2 Methods of laying the bricks and its advantages and disadvantages

**Workshop Practice:**

Project Work and Report on the following (any two)

- i) Making of various components using fitting tools
- ii) Carryout various processes using various machine tools
- iii) Cut threads on the pipes and make various joints using various fittings
- iv) Carryout various bricklaying exercise using common hand tools.

**Industrial Visit(s)**

Arrangements to be made with local industries (if available) for students industrial visits

**References: -**

- Shop Theory, J. Anderson and E.E. Tatro, McGraw Hill.
- A course in workshop technology volume I & II, Prof B.S.Raghubanshi, Dhanpat Rai & Sons, Delhi
- Workshop Technology Volume I & II, H.S. Bawa, Tata Mcgraw Hill Publishing Company Limited, New Delhi
- A Course in Workshop Technology Volume I & II , Hazra & Choudhary
- Machine Shop Operations and Setups, O.D.Lascoe, C.A.Nelson and H.W.Porter, American Technical Society.
- Machine Shop Practice Volume -I & II Industrial Press, New York
- Technology of Machine Tools, K.Oswald, Mc Graw Hill
- Machinery's Hand Book, Oberg, Jones and Horton, Industrial Press
- CNC Machines