

111006 -Workshop Practice		
Teaching Scheme: PR : 2 Hrs/Week	Credits 01	Examination Scheme: PR : 25 Marks
Course Objectives: 1. To understand the construction and working of machine tools and functions of its parts. 2. To develop the skill through hands-on practices using hand tools, power tools, machine tools in manufacturing and assembly shop leading to understanding of a production processes. 3. To understand workshop layout and safety norms.		
Course Outcomes: CO1: Familiar with safety norms to prevent any mishap in workshop. CO2: Able to handle appropriate hand tool, cutting tool and machine tools to manufacture a job. CO3: Able to understand the construction, working and functions of machine tools and their parts. CO4: Able to know simple operations (Turning and Facing) on a centre lathe.		
Note 1. The demonstration of machine tools to be conducted by <u>teaching</u> faculty. 2. Minimum eight experiments to be conducted out of 10.		
Guidelines for Instructor's Manual Instructor manual shall contain: • The production drawing of a job with all linear and geometric dimensions, Raw material, size and shape, allowances provided. • List of tooling required. • Process plan to complete the job. • General safety instructions.		
Guidelines for Student's Lab Journal i. Student has to maintain a workshop diary consisting of drawing / sketches of the jobs and a brief description of tools, equipment, and procedure used for doing the job and time schedule. ii. Student has to maintain one file for write ups based on demonstration of machine tools and safety norms		
Guidelines for LAB/TW Assessment Term work assessment shall be based on the timely completion of jobs, quality of job, skill acquired, and maintain of workshop diary and brief write-ups on illustrations/sketches of demonstrated parts/mechanisms/machine tools etc.		
Guidelines for Laboratory Conduction i. 1st on importance of workshop practical and shop floor safety norms ii. 2nd to 6th Sessions are about demonstration of machine tools (Any 4) iii. 7th to 9th on making utility job (Any 2) iv. 10th & 11th session on preparation of workshop layout and safety norms.		
Suggested List of Laboratory Experiments/Assignments		
Sr. No.	List of Experiments	
1.	Mandatory briefing on shop-floor safety	
2.	Demonstration and working of centre lathe Demonstration on various functions of lathe parts: Headstock, Tailstock, Carriage, Lead screw, All geared Mechanism, Apron mechanism etc.	
3.	Demonstration of Lathe operations: Step turning and facing, drilling operation on a Mild Steel cylindrical job on centre lathe. Understanding the concept of speed, feed and depth of cut.	

4.	Demonstration of Drilling machine Demonstration on construction of Radial drilling machine, Tool holding devices, Concept of speed, feed and depth of cut.
5.	Demonstration on Milling machine Demonstration on construction, table movements, indexing and tooling of milling machine.
6.	Demonstration of Shaper/Grinding machine (Any one) Shaper: Crank and slotted link mechanism, Work feed mechanism Grinding: Surface grinder/Cylindrical grinding machine, Mounting of grinding wheel
7.	Term work includes one job of Carpentry Introduction to wood working, kinds of woods, hand tools & machines, Types of joints, wood turning. Pattern making, types of patterns and its allowances.
8.	Term work to include one job involving fitting to size, male-female fitting with drilling and tapping operation on Mild Steel plate; Introduction to marking, cutting and sawing, sizing of metal, shearing, Concept of fits and interchangeability, selection of datum and measurements.
9.	Term work to include one utility job preferably using sheet metal (e.g. Tray, Funnel etc.) with riveting/welding/brazing/soldering (at least one temporary and one Permanent joint either using resistance welding/Arc welding); Introduction to sheet metal operations: punching, blanking, bending, drawing.
10.	Prepare a Layout of Workshop To prepare a work shop layout.
11.	Collection of information about safety norms in any one of the following type of industry: Metalworking/Chemical/Cement/Pharmaceuticals/Defense/Atomic energy/Aerospace /Marine/Construction/Railway etc.

Reference/Text Books

1. John, K. C., (2010), "Mechanical Workshop Practice, Prentice Hall Publication, New Delhi
2. Hazra and Chaudhary, Workshop Technology-I & II, Media promoters & Publisher Pvt. Ltd.

101007: Environmental Studies-I

TH:02 Hrs./week

(Mandatory Non-Credit Course)

Course Objectives:

1. To explain the concepts and strategies related to sustainable development and various components of environment.
2. To examine biotic and abiotic factors within an ecosystem, to identify food chains, webs, as well as energy flow and relationships.
3. To identify and analyze various conservation methods and their effectiveness in relation to renewable and nonrenewable natural resources.
4. To gain an understanding of the value of biodiversity and current efforts to conserve biodiversity on national and local scale.

Course Outcomes: On completion of the course, learner will be able to–

CO1: Demonstrate an integrative approach to environmental issues with a focus on sustainability.

CO2: Explain and identify the role of the organism in energy transfers in different ecosystems.

CO3: Distinguish between and provide examples of renewable and nonrenewable resources & analyze personal consumption of resources.

CO4: Identify key threats to biodiversity and develop appropriate policy options for conserving biodiversity in different settings.

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