Board of Studies in Production/Industrial Engineering
University of Pune

FE – All Branches
Workshop Practices

Teaching Scheme	Examination
Scheme	Marks
Practical: 2 hrs/week	Term work: 50

Objective :
Introduction to different materials in engineering practices with respect to their workability, formability & machinability with hand tools & power tools and to develop skills through hands on experience.

I. Any Two Utility Jobs

(a) Carpentry - 1 Job
Introduction to wood working, kinds of woods, hand tools & machines, Types of joints, wood turning. Pattern making, types of patterns, contraction, draft & machining allowances
Term work to include one job involving joint and woodturning.

(b) Fitting - 1 Job
Types of Fits, concepts of interchangeability, datum selection, location layout, marking, cutting, shearing, chipping, sizing of metals, drilling and tapping.
Term work to include one job involving fitting to size, male-female fitting with drilling and tapping.

(c) Sheet Metal Practice – 1 Job
Introduction to primary technology processes involving bending, punching and drawing various sheet metal joints, development of joints.
Term work to include a utility job in sheet metal.

(d) Joining – 1 Job
Includes making temporary and permanent joints between similar and dissimilar material by processes of chemical bonding, mechanical fasteners and fusion technologies.
Term work includes one job involving various joining processes like riveting, joining of plastics, welding, brazing, etc.

II. Broad Guidelines for demonstrations [any four]
Each demonstration will be of 2 hours duration.

(a) Assembly and Inspection
Assembly and Disassembly of some products, tools used. Videos of advancement in manufacturing technology. Inspection of various components using different measuring instruments. Introduction to measuring equipments used in Quality Control

(b) Safety in Workshop

Fire hazards, electric short circuit –causes and remedies, Machine protection, Human protection, Accident prevention methods, developing ability to observe safe working habits.

(c) Forging

Hot working, cold working processes, forging materials, hand tools & appliances, Hand forging, Power Forging.

(d) Moulding

Principles of moulding, methods, core & core boxes, preparation of foundry sand, casting, Plastic moulding.

(e) Plumbing

Types of pipe joints, threading dies, Pipe fittings.

(f) PCB Making

Layout drawing, positive & negative film making, PCB etching and drilling.

(g) Machine Tools

Turning, Milling, Grinding, Shaping, Planning - machines, Tools & Accessories.

Note:

All demonstrations to be engaged by teaching faculty and corresponding teaching load be shown in the time table for respective teaching faculty.

III. **Submissions:**

1) Two jobs as mentioned above.
2) Brief write-up with illustration/sketches on the demonstrations (not more than 3 pages for each demonstration)

Text Book:

Chaudhas, Hazra, "Elements of Workshop Technology", Volume I&II, Media Promoters & Publishers, Mumbai