Semester	**:**	**I**		
Course No.	**:**	**FMPE-111**	**Credit Hrs.**	**: 2(0+2)**
Course Title	**:**	**Workshop Technology and Practice**		

SYLLABUS

Objectives: To expose the students to the basic manufacturing processes involved for production of different machine elements and to facilitate hands-on experience of using these machines.

PRACTICAL

Introduction about different shops in the workshop; Safety and precautions to be taken in the workshop; Study of different tools used for fitting and different fitting operations; Study of various measuring instruments used for fitting; Exercise in fitting: sawing, filing and right angle fitting of MS flat; Working with complex fitting jobs: operations of drilling, reaming, and threading and with tap dies; Preparation of a paper weight; Study of various carpentry tools, types of wood and their characteristics and working with carpentry tools; Preparation of simple joints in carpentry: cross half lap joint or T-half joint, Mortise and Tenon joint in carpentry; Preparation of dovetail joint in carpentry; Study of welding, types of welding, oxyacetylene gas welding, types of flames, welding techniques and equipment used for gas welding, working with welding equipment; Working with electric arc welding; Equipment and tools, safety and precautions taken in arc welding; Preparation of Butt joint and lap joint with ARC welding; Preparation of Lap and Butt joints using gas welding; Working on a lathe machine and study of different tools used in lathe machine; Exercise on simple turning, step turning in lathe machine; Preparation of job on taper turning, drilling, knurling and threading in lathe machine; Working with different machines in machine shop such as shaper ,milling machine, etc. and with different tools used in machine shop; Exercise on bending, shaping etc.; Exercise on Drawing, Punching, Riveting; Making different types of sheet metal joints using G.I. sheets; Practice job on shaper; Changing a round MS rod into square section with a shaper; Exercise on a milling machine such as making a slot, gear tooth forming and indexing.

Suggested Readings [FMPE-111]:

1. Chapman W.A.J. 2018. Workshop Technology (Vol. I and II), Arnold Publishers (India) Pvt Ltd. New Delhi.
2. Hajra Choudhari, S. K. Roy N, Hajra Choudhary A.K. 2017. Elements of Workshop Technology (Vol. I and II), Media Promoters and Publishers Pvt Ltd, Mumbai
3. Khurmi R.S and Gupta J.K. 2018 A Textbook of Workshop Technology. S. Chand and Company Ltd., New Delhi.
4. Raghuwanshi B.S. 2016. A Course on Workshop Technology (Vol. I and II), Dhanpat Rai and Sons, New Delhi.

TEACHING SCHEDULE

PRACTICAL [FMPE-111]

Exercise No.	Exercise Title
1	Introduction about different shops in the manufacturing workshop, study of safety tools and safety precautions/measures
2	Exercise in fitting shop: sawing, filing
3	Exercise in fitting shop: right-angle fitting of MS flat
4	Exercise on operations of drilling, reaming
5	Exercise on operations of threading and with tap dies
6	Preparation of a paper weight
7	Preparation of cross half lap joint or T-half joint in carpentry
8	Preparation of Mortise and Tenon joint in carpentry
9	Preparation of dovetail joint in carpentry
10	Preparation of Butt joint with ARC welding
11	Preparation of Lap joint with ARC welding
12	Preparation of Butt joint using gas welding
13	Preparation of Lap joint using gas welding
14	Introduction and demonstration on a lathe machine
15	Exercise on simple turning in lathe machine
16	Exercise on step turning in lathe machine
17	Preparation of job on taper turning in lathe machine
18	Preparation of job on drilling in lathe machine
19	Preparation of job on knurling in lathe machine
20	Preparation of job on threading in lathe machine
21	Introduction and demonstration on shaper machine
22	Introduction and demonstration on milling machine
23	Exercise on Bending
24	Exercise on Shaping
25	Exercise on Drawing
26	Exercise on Punching
27	Exercise on Riveting
28	Making different types of sheet metal joints using G.I. sheets
29	Exercise on changing a round MS rod into square section with a shaper
30	Introduction and demonstration of a slot making with milling machine
31	Introduction and demonstration of a gear tooth forming
32	Introduction and demonstration of indexing mechanisms.