



INSTRUCTION DIVISION
FIRST SEMESTER 2016-2017
(Course Handout Part II)

Dated: 02/10/2016

In addition to Part-I (General Handout for all courses appended to the timetable) this portion gives specific details regarding the course.

Course No.: ME F110
Course Title: Workshop Practice
Instructor-in-charge: Gajanand Gupta

Team of Instructors: Gajanand Gupta, K G Daiya, Narpal Ram Sangwa, Neetu Malik, Vikrant Bhakar, Kailash Choudhary, Nikhat Waseem, Kiran Raj, Kapil Dev

☞ **Course description:**

Laboratory exercises involving machining, fitting and joining processes. Casting; metal forming; forging, welding and brazing; metal cutting machines e.g., lathe shaper and planer; drilling milling and grinding;

1. Scope and objective of the Course:

This course aims at imparting practical aspects of the basic techniques and skills used to make/produce/repair metal and wooden products. This course provides basic manufacturing techniques and allied/supporting techniques used to produce finished products from raw materials. Students will be given practical training on various basic manufacturing techniques like machining, forging, casting, sheet metal working, welding, soldering, brazing and other joining techniques using common machine tools, hand tools and other equipments. Various joining and fitting skills will also be imparted in the practical classes.

2. Books:

Textbook

- (i) Sangwan K S , Rao C R and Daiya K G, *Practical Manual for Workshop Practice*, EDD, BITS Pilani.
- (ii) B S Nagendra Parashar and R K Mittal, *Elements of Manufacturing Processes*, Prentice Hall of India, 2006, 4th print.

Reference Book

Campbell J.S., *Principles of Manufacturing Materials and Processes*, Tata Mc-Graw-Hill, New Delhi, 23rd reprint 2006.

3. Course Plan:



S. No.	Type of Lab/Shop	Topics to be covered	No. of turns
1	Fitting	Fitting tools and equipments, basic fitting operations, fabrication of a metal job using fitting skills	3
2	Welding	Welding tools and equipments, common types of welding, welding techniques, fabrication of joints using arc welding and gas welding	3
3	Smithy	Smithy tools and equipments, smithy operations, preparation of a simple job using hot forging skills	1
4	Sheet metal	Sheet metal tools, sheet metal operations, development and fabrication of a job using sheet metal operations	2
5	Carpentry	Carpentry tools and equipments, preparation of a wooden job using various joints	3
6	Machining on lathe	Main parts of a centre lathe, work holding devices, cutting tools, operations on a centre lathe, machining of a metal job using a centre lathe, Operating parameters	3
7	Machining on shaper	Main parts of a shaper, work holding devices, machining of a metal job using a shaper, Operating parameters	2
8	Machining on milling	Main parts of milling, milling cutters, machining of a metal job on a milling machine, Operating parameters	1
9	Grinding	Types of grinding machines and their main parts, demonstration of simple grinding on centreless, surface, cylindrical, and tool & cutter grinder, Operating parameters	1
10	CNC machining	CNC fundamentals, demonstrations on CNC turning and milling centres, Operating parameters	1
11	Metrology	Common measuring instruments used in workshop, experiments to find the angle of a dovetail, angle of a taper and the radius of a circular surface	1
12	Foundry	Common foundry tools and equipments, preparation of a green sand mould	1
13	Rolling	Objective of rolling, rolling process, practical on two high rolling mill	1
14	Electroplating	Electroplating a given job	1

4. Evaluation Scheme:

S. No.	Component	Duration	Weightage	Date & time	Nature
1	Practical	-----	70% (210 Marks)	Continuous	-
2	Comprehensive Quiz		30% (90 Marks)	To be announced later	CB

5. Make-up Policy:

- At most **TWO** genuine make-up will be allowed with **prior permission**. All make-up requests are to be made to **Mr. K. G. Dhayia** with relevant documents.
- **No makeup will be given for Comprehensive Quiz Examination.**

6. Notices: All notices concerning the course will be displayed on **Workshop notice board** only.

Instructor-in-charge
ME F110