

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI
K.K. BIRLA GOA CAMPUS
SECOND SEMESTER 2017-2018
(Course Handout Part II)

Date: **08/01/2018**

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 : Dr. Sachin Waigaonkar

Team of Instructors: Pozhil S.N., Nikhil Kadam, Rushikesh Shinde, Dixit Swadesh, Chandrashekhar Chauhan.

Workshop Supervisor: Vijay Suryavanshi, Assistant workshop Superintendent

Course description: Shop practice involving machining (turning, facing, thread cutting, drilling, and grinding etc.) casting, metal forming, welding, fitting and wood-working etc.

1. Scope and Objective of the Course:

This course is an entry level course for all first degree students. The course will provide an overview of the techniques and applications of basic manufacturing processes required to produce a finished product from raw materials.

The primary objective of this course is to learn how a product is manufactured and to gain technical knowledge and skills involved in the processes. This knowledge will be useful in whatever discipline a student belongs to.

The manufacturing processes covered include Machining, Casting, Joining processes, metal forming, Sheet metal work processes. The students are exposed to modern manufacturing machines like CNC, and usage of computers in manufacturing. A brief review of the properties of engineering materials and of measuring and gauging tools are also included.

The course is practical orientated and requires that basic skills in handling of tools, machines and machine tools used in different manufacturing processes are acquired through the hands-on experience.

Practical classes will be conducted in the Workshop, and they are intended to provide hands-on experience in handling of basic tools, machines, machine tools and produce simple utility jobs.

2. Books:

Text Book

- a) B S Nagendra Parashar and R K Mittal, *Elements of Manufacturing Process*, Prentice Hall of India, 2003.

Reference Books

- a) Campbell J.S., *Principles of Manufacturing Materials and Processes*, Tata McGraw-Hill, New Delhi, 1995 print.
b) Richard R. Kibbe et al, *Machine Tool practices*, Sixth edition, Prentice Hall of India Pvt. limited, New Delhi, 2003.
c) E. Paul Degarmo, J.T. Black, Ronald A. Kosher, *Materials and processes in Manufacturing*, PHI 2005.
d) Mikell P. Groover, *Fundamentals of Modern Manufacturing*, Second edition, John Wiley & sons Pvt Ltd.

Laboratory Manual

Practical Manual for Workshop Practice, EDD, BITS Pilani, GOA Campus.

3. Course Plan:

Exercise No.	Description	No. of Jobs	Nature of work
1	Metal Turning Lathe	1	Sharing
2	Fitting	1	Individual
3	Electric Arc Welding	1	Individual
4	Carpentry	1	Individual
5	Metrology	4 Experiments	Individual
6	Pipe Bending and Pipe Threading	1	Individual
7	Wood Turning Lathe work	1	Individual
8	Gas Welding Exercise	1	Individual
9	Foundry Practice	1	Sharing
10	Electroplating	1	Sharing
11	Demonstration of the shaper machine and milling machine	-----	-----
12	Demonstration of the CNC machines	-----	-----

4. Evaluation Scheme:

Sr. No.	Component	Duration	Weightage (200 marks)	Date & time	Nature
1	Laboratory Practical Regular class work	Continuous	95 marks	Regular	--
2	Lab Report and Regular Observations	Continuous	10+5=15 marks	Regular	---
3	Laboratory Practical Comprehensive exam	2 Hrs.	40 marks	Will be announced later	--
4	Quiz Comprehensive exam (online)	1Hr	50 marks	30-11-2017	Closed book

5. Workshop Practice and some points of safety:

Since the students may not be fully conversant with the operating mechanisms of the machinery of the workshop, direct handling of the machines should always be avoided. They should do it with supervision of the concerned Workshop staff and faculty only.

The student must wear apron meant for the practical. The aprons should be stitched within the first week of the admission. **The students should wear shoes during lab hours.** If any student is found without the apron or shoes, he/she will not be admitted to the workshop and will lose attendance. Any loose garment

which can hangout and thus endanger the personal safety of the student, are not allowed in the workshop. Therefore admission to workshop is conditional on the basis of these conditions of the protective wear. Instructor In Charge / Workshop Superintendent's discretion is final.

6. Make-up Policy:

Make up for shop practice will not be permitted. In case of a genuine difficulty, the student can complete his practical in some other batch, by taking prior permission from the concerned instructor as well as the instructor of the practical batch in which student is going to work.

7. Notices: All notices concerning the course will be displayed either on Workshop Notice Board or on course folder of Moodle server.

8. Others: Any creative activity to promote the understanding of the subject is encouraged. The students can come up with simple projects to familiarize themselves various manufacturing practices. For this, the students can consult the Instructor/ the Instructor in Charge / the Workshop Superintendent.

**Instructor In-charge
ME F110**