



SECOND SEMESTER 2019-2020
COURSE HANDOUT (PART-II)

Date: 05/01/2020

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

Course Code : ME F243
Name of the Course : Production Techniques I
Instructor-In-Charge : Prof. N. Suresh Kumar Reddy
Instructor (Tut) : Dr. NSKReddy. Dr. Sujith R; Dr. Ravi Shanker Vidyarthi

I. Scope and Objective of the Course

This course is designed to enrich theoretical, analytical as well as practical knowledge about common production techniques used in manufacturing. Methods of selection of proper production techniques are also included.

II. Textbook

1. Amitabha Ghosh and Asok Kumar Mallik, "Manufacturing Science", Affiliated East-West Press, New Delhi, 1985.
2. Serop Kalpakjian and Steven R. Schmid, "Manufacturing Engineering and Technology," Pearson Education (Low Cost Indian Edition), 4/e, 2001, New Delhi.

III. Reference Books

1. Roy A. Lindberg, "Processes and Materials of Manufacture," PHI, New Delhi, 2004.
2. P. N. Rao, "Manufacturing Technology: Foundry, Forming & Welding," TMH, New Delhi, 2000.
3. P. N. Rao, "Manufacturing Technology: Metal Cutting & Machine Tools," TMH, New Delhi, 2000.

IV. Course Contents

<i>Topic</i>	<i>Learning Objectives</i>	<i>Topics to be covered</i>	<i>Number of Lectures</i>	<i>Source</i>
1. Metal Casting	To learn fundamental principles of casting process To learn solidification process To learn the design principles of mould design	Pattern and mould, melting, pouring, gating design, riser design. Various casting processes, casting defects & inspection of castings.	8	T1 & T2





<i>Topic</i>	<i>Learning Objectives</i>	<i>Topics to be covered</i>	<i>Number of Lectures</i>	<i>Source</i>
2. Metal Forming	To learn fundamentals of bulk deformation processes To learn important processing parameters like force and power in bulk forming	Plastic deformation and yield criteria, mechanics forming processes (rolling, forging, drawing, deep drawing, bending, extrusion, punching & blanking).	5	T1 & T2
	To learn different machinery used for bulk deformation To learn different sheet metal forming process	Various forming operations, hot and cold forming, forming defects. Sheet metal forming processes		
3. Metal Machining	Simple description of various machining operations.	Machine tools and cutting tool geometry,	6	T1& T2
4. Joining Processes	To learn fundamentals of welding processes To learn types of welding processes To learn power requirements in different welding processes	Principles of solid phase welding and liquid phase welding, soldering, brazing and adhesive bonding. Welding analysis, Various welding processes, weld defects and inspection.	5	T1& T2
5. Metrology	To learn fundamentals of Limits, fits and tolerances used by the industry To learn types of limits and fit How to derive the values for different limits fits and tolerances	Tolerance, zero line, sign convention, tolerance zone, fits, variation of fit or tolerance fit, basic hole system of fits, basic shaft system, standards of limits and fits.	3	T2
		Selected shaft and hole tolerances and fits, type of fits, tolerances and fits for bearings, calculation of clearance in journal bearings, selective assembly, calculation of dependent tolerances on distance between centers of holes, limit gauges.	2	T2
Total			29	



V. Evaluation Scheme and Schedule

EC No.	Component	Duration	Weightage (%)	Date, time, venue	Nature
1	Mid Test	90 min	25		CB
2	Tutorial		10		OB
3	Class room Tutorial		10		OB
4	Practical & Fabrication Project proposal		10+5		OB
5	Comprehensive exam	3 hours	40		CB

VI. Chamber Consultation Hour: To be announced in the class.

VII. Notices concerning the course: All notices concerning the course will be displayed on the CMS notice board.

VIII. Make-up Policy: Make-up will be permitted only in genuine cases with prior permission.

NOTE: The border cases in final grading will be decided based on mainly class room attendance and attentiveness in the classroom.

Instructor-In-Charge
ME F243

