



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** : K. S. SANGWAN  
**Instructors (Practicals)** : Vikrant Bhakar, Kailash Chaudhary, Narpat Sangwa

### I. Scope and Objective of the Course

This course is designed to enrich theoretical, analytical as well as practical knowledge about metal casting, forming, welding and machining techniques used in manufacturing. Various methods in 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. Serope 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.
4. Serope Kalpakjian, Steven R. Schmid, "Manufacturing Processes for Engineering Materials", 4/e, Pearson Education, 2003.

### IV. Course Contents

Topic	Learning Objectives	Number of Lectures	Source
<b>1. Introduction</b>	Manufacturing properties of materials, control of manufacturing properties of materials	2	T1 & T2
<b>2. Limits, Fits and Metrology</b>	Need of limits and fits. Types of Fits, General Metrology	2	T2





Topic	Learning Objectives	Number of Lectures	Source
<b>3. Metal Casting</b>	Pattern and mould, melting, pouring, gating design, riser design	3	T1 & T2
	Various casting processes, casting defects & inspection of castings	4	
<b>4. Metal Forming</b>	Plastic deformation and yield criteria, mechanics of forming processes (rolling, forging, drawing, deep drawing, bending, extrusion, punching & blanking)	6	T1 & T2
	Various forming operations, hot and cold forming, friction and lubrication in forming, forming defects	3	
<b>5. Joining Processes</b>	Principles of solid phase welding and liquid phase welding, soldering, brazing and adhesive bonding,	2	T1& T2
	Various welding processes, weld defects and inspection	3	
<b>6. Metal Machining</b>	Simple description of various machining operations, machine tools and cutting tool geometry.	3	T1 & T2
Total		28	

## V. Evaluation Scheme and Schedule

EC No.	Component	Duration	Weightage (%)	Date, time, venue	Nature
2	Mid-semester Test	90 min	30	18/3 2:00 -3:30 PM	CB/OB
3	Class Room Assignments		10		OB
4	Practical		25		
5	Comprehensive exam	3 hours	35	13/5 FN	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 workshop notice board.

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

**Instructor-In-Charge**  
**ME F243**

