

1. Subject Code: **ME 208** Course Title: **Manufacturing Technology-I**
2. Contact Hours : 42+28=70 L: 3 T: 0 P: 2
3. Examination Duration (Hrs.) : Theory: 3 Practical: 0
4. Relative Weight : CWS: 15 PRS: 15 MTE: 30 ETE: 40 PRE: 0
5. Credits : 4
6. Semester : IV
7. Subject Area : DCC
8. Pre-requisite : NIL
9. Objective : To familiarise students with directional solidification during casting of different metals. To enable the students to understand the joining of metals by fusion or non-fusion or by application of pressure. To familiarise the students with forming behaviour of different metals at different temperatures.

ME-57

10. Details of Course:

S. No.	Contents	Contact Hours
1	Casting: Properties of moulding sand, Sand testing, Gating and risering system, Principle, process and applications of Die casting, Centrifugal casting, Investment casting, and Continuous casting, Melting of metal for casting, Casting defects their causes and remedies, Cleaning and Inspection of castings, Foundry mechanization and layout.	7
2	Welding: Principle, equipment, and applications of Submerged Arc Welding (SAW), Gas Tungsten Arc Welding (GTAW), Gas Metal Arc Welding (GMAW), Plasma Arc Welding,	7
3	Ultrasonic Welding, Electron Beam Welding (EBW) and Laser Beam Welding (LBW), Gas cutting and arc cutting of metals, Welding defects their causes and remedies.	7
4	Metal Forming: Mechanical behaviour of metals in elastic and plastic deformation, stress-strain relationships, Yield criteria, Concept of flow stress by true stress-strain curves	7
5	Hot Forming and Cold Forming, Analysis of important metal forming processes like Forging, Rolling, Extrusion, Wire Drawing by slab method, Sheet metal forming processes. Introduction to High Energy rate forming processes.	7
6	Powder Metallurgy: Powder metallurgy process and operations, Advantages, Applications and Limitations of powder metallurgy.	7
Total		42

11. Suggested Books:

S. No.	Name of Authors /Books / Publishers
1	Manufacturing Technology by P.N.Rao, Tata McGraw Hill Publications
2	Manufacturing Processes and Automation by R.S.Parmar, Khanna Publications
3	Workshop Technology Vol.1, by B.S.Raghuwanshi, Dhanpat Rai Publications
4	Processes & Materials of Manufacture by R.A.Lindberg, Prentice Hall Publication
5	Principle of Metal Casting by Heine & Rosenthal, Tata McGraw Hills Publication