

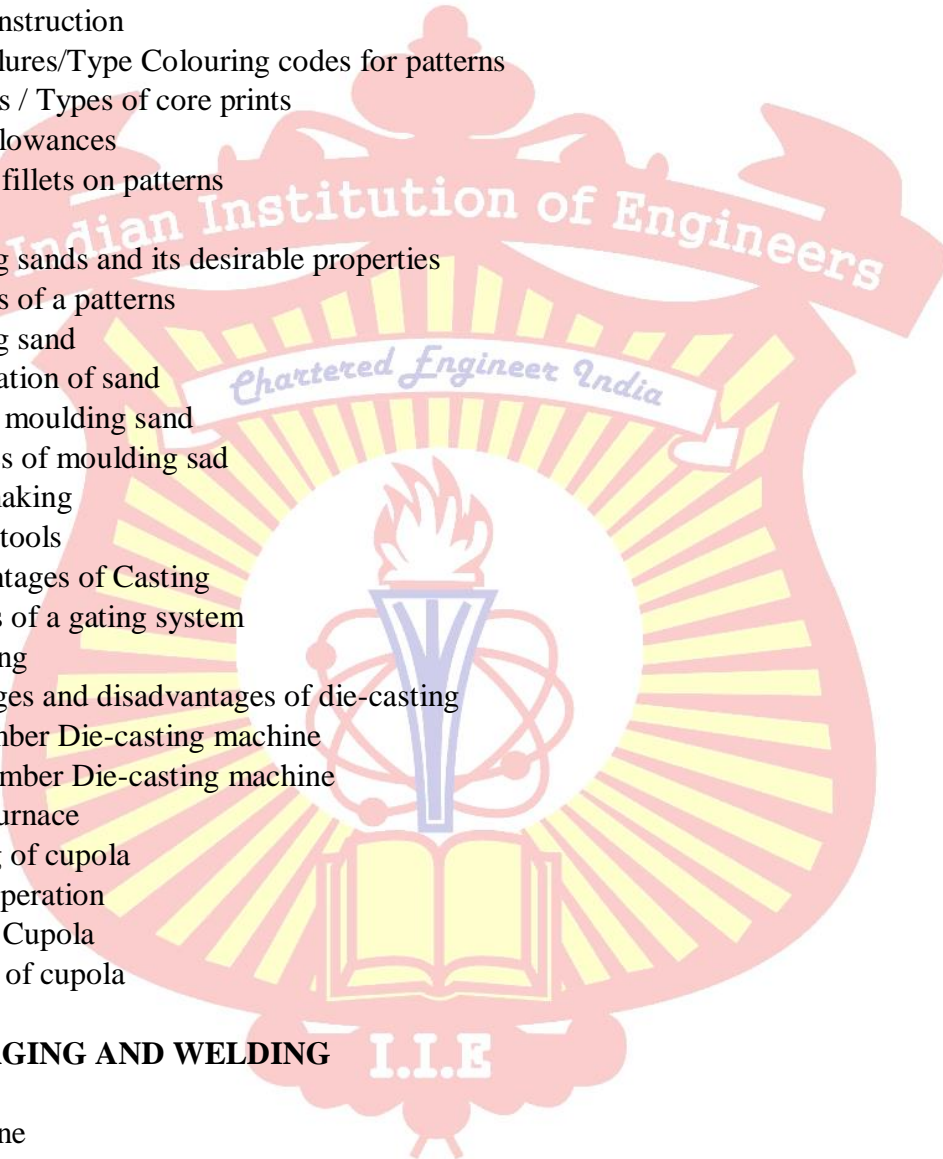
## 2.9 30268 MANUFACTURING TECHNOLOGY

### UNIT-1 FOUNDRY

- 1.1 Casting process
- 1.2 Basic steps in casting
- 1.3 Pattern and Allowances (a) Pattern (b) Pattern Materials
- 1.4 Design considerations in pattern making
- 1.5 Pattern construction
- 1.6 Pattern colours/Type Colouring codes for patterns
- 1.7 Core prints / Types of core prints
- 1.8 Pattern Allowances
- 1.9 Providing fillets on patterns
- 1.10 Types
- 1.11 Moulding sands and its desirable properties
- 1.12 Functions of a patterns
- 1.13 Moulding sand
- 1.14 Classification of sand
- 1.15 Types of moulding sand
- 1.16 Properties of moulding sand
- 1.17 Mould making
- 1.18 Foundry tools
- 1.19 Disadvantages of Casting
- 1.20 Elements of a gating system
- 1.21 Die casting
- 1.22 Advantages and disadvantages of die-casting
- 1.23 Hot chamber Die-casting machine
- 1.24 Cold chamber Die-casting machine
- 1.25 Cupola furnace
- 1.26 Charging of cupola
- 1.27 Cupola operation
- 1.28 Zones in Cupola
- 1.29 Capacity of cupola

### UNIT-2 FORGING AND WELDING

- 2.1 Forging
- 2.2 Drop engine
- 2.3 Pneumatic power hammer
- 2.4 Forging press
- 2.5 Power press-Mechanical press
- 2.6 Advantages of forging process
- 2.7 Disadvantages of forging process
- 2.8 Introduction
- 2.9 Weldability



- 2.10 Concept of welding (Types of welding)
- 2.11 Classification of welding process
- 2.12 Forge or smithy welding
- 2.13 R Resistance welding
- 2.14 F Fusion
- 2.15 Thermit welding
- 2.16 Electric Arc welding (a) ARC welding equipment's (b) ARC column theory (C) Difference between A.C and D.C Arc welding
- 2.17 Electrodes (a) Functions of flux coated on electrodes (b) Welding current (C) Selection of electrodes (d) Electrode size (e) Electrode coverings (f) Polarity (g) Precautions during electric ARC welding
- 2.18 Types of welding joints (a) Welding positions (b) Edge preparation
- 2.19 Welding defects
- 2.20 Advantages and Disadvantages of welded joints
- 2.21 Gas welding (Working pressure)
- 2.22A assembly and care in use of equipment's 68 (a) Fluxes (b) Welding rods (c) Types of flame (d) Welding methods (Techniques)
- 2.23 Soldering
- 2.24 Brazing
- 2.25 Welding of copper

### **UNIT-3 POWER METALLURGY AND HEAT TREATMENT**

- 3.1 Powder metallurgy
- 3.2 The powder metallurgy
- 3.3 Production of metal powders
- 3.4 Main characteristics of metal powders
- 3.5 Advantages and disadvantages of powder metallurgy
- 3.6 Disadvantages and limitations
- 3.7 Heat Treatment
- 3.8 Purpose of heat treatment
- 3.9 Principle of heat treatment (Stages of heat treatment process)
- 3.10 Heat treatment processes
- 3.11 Annealing
- 3.12 Normalizing
- 3.13 Hardening (a) Hardenability (b) Factors affecting hardenability (c) Determination of hardenability (d) Hardening methods
- 3.14 Defects in the heat treatment of steel

### **UNIT-4 LATHE**

- 4.1 Lathed
- 4.2 Lathe operations

### **UNIT-5 METROLOGY**

- 5.1 Definitions
- 5.2 Classification of measuring instruments
- 5.3 Technical specification of measuring instruments
- 5.4 Micrometers
- 5.5 The comparator
- 5.6 Uses of comparators
- 5.7 Types of comparators
- 5.8 Mechanical comparators
- 5.9 Gauges

**Reference Book:** Manufacturing Technology I by Dr. K.S. Yadav

