

AMAR-16 BUILDING MATERIAL-IV

UNIT-1 FERROUS METALS: STEEL

- 1.1 Iron ore: definition, introduction, manufacture of iron ore, types- pig iron,
- 1.2 Wrought iron and cast iron-their properties and uses.
- 1.3 Steel- definition, properties, Manufacture, casting, heat treatment,
- 1.4 Mechanical treatment process of steel, market forms of steel, fire protection of steel
- 1.5 Corrosion of ferrous metals (Causes, factors of corrosion and prevention).

UNIT-2 STEEL ALLOYS AND INNOVATIONS IN STEEL INDUSTRIES

- 2.1 Steel alloys- properties and uses.
- 2.2 Structural steel-definition and protection. Steel sheeting- types of sheeting.
- 2.3 Stainless steel in building Industry as a structural entity by studying codes.
- 2.4 Study of innovations in steel industry.
- 2.5 Design and construction parameters developed by INSDAG.

UNIT-3 NON-FERROUS METALS

- 2.4 Aluminium and Aluminums Alloys (Manufacture, properties, durability, and uses) - Aluminium products (extrusions, foils, castings, sheets etc.)
- 2.5 Other non-ferrous metals copper, lead, zinc (Manufacture, grades, forms, sizes)
- 2.6 Study of protection to non-ferrous metals and products such as anodizing, powder coating, painting, stove enamelling, chromium plating, varnishing, melamine treatments.

UNIT-4 PLASTICS

- 4.1 Polymerisation, thermoplastics, thermosetting plastics, elastomers, properties of plastics,
- 4.2 Strength, plastic forming process, uses of plastics and decorative laminates
- 4.3 Plastics in construction (polythene, poly propylene,
- 4.4 PVC, ethylene, polycarbonate, acrylic flooring, PVC tiles)

UNIT-5 OTHER MATERIALS

- 5.1 Light-roofing materials (Recent trends in roofing materials like Corrugated GI Sheets, Pre-coated metal sheets, Polycarbonate sheeting,
- 5.2 Teflon coated sheets, PTFE Steel alloys properties and uses)
- 5.3 Adhesives, Sealants and joint fillers (Relative movement within buildings, types of sealants- elasto-plastic, elastic sealants
- 5.4 Joint design- fire resistant sealants- gaskets
- 5.5 Adhesives, epoxy, wall paper, bitumen, plastic pipe)
- 5.6 Materials for flooring finishes such as epoxy, oxy-chloride, hardeners, PVC, carpets.

References Books:

1. Don A.Watson, "Construction Materials and Process", McGraw Hill Co., 1972.
2. Arthur Lyons, "Materials for Architects and Builders", an introduction Arnold, London, 1997.