

SYLLABUS :-

Introduction to Materials, General structure and properties. Classification of common materials and applications. Chemical Bonding, Crystalline, Amorphous. Melting, Solidification, Nucleation, Phase diagrams. Metal and alloys in Medical application: Stainless steel, cobalt based alloys, titanium based alloys (including shape memory alloys). Ceramics and glasses-bioceramics: Type of Ceramics and their classification, Calcinations, Annealing, Sintering, Nearly inert ceramics, bio-reactive glasses and glass ceramics, Calcium phosphate ceramics. Introductions to polymers: Definition, classification, Polymerization. Rubber, plastics, fibers and resins and structure-properties relationship. Biodegradable polymers; Natural polymers, Composites, Pyrolytic carbon, Carbon nano tubes. Bulk Proper, Surface properties and modification of surface properties. Basic principles of engineering manufacturing, methods and applications of common manufacturing processes, milling, grinding, finishing, rolling, forging, Concept of biomimetic synthesis, Preparation of fiber and wire, Fabrication of Porous Materials, Direct moulding Technique, Different advanced fabrication technique.