

1. Introduction :- Aims and scope of the science of dental materials.
2. Structure and behaviour of matter.
3. Important Physical properties applicable to Dental Materials including their biological consideration.
4. Gypsum products used in dentistry including casting investment materials with or without gypsum binder.
5. Impression materials used in dentistry including duplicating materials.
6. Synthetic resins used in dentistry :
 - (a) General properties and physical characteristics.
 - (b) Resins as denture base materials, repair and relining materials, Soft liners, tissue conditioners.
 - (c) Resins as restorative materials, Unfilled and filled resin restorative materials, tissue sealant.
 - (d) Direct-holding cement materials.
7. Metals and alloys : their structure and behaviour some important physical properties.
 - (a) Dental amalgam alloys.
 - (b) Gold foil.
 - (c) Dental casting gold alloys.
 - (d) Stainless steel chrome-cobalt alloys.
8. Dental waxes including inlay casting wax.
9. Gold inlay casting procedures : Preparation of the die-wax pattern, spring, investing, control of shrinkage compensation. Wax elimination-casting machines, casting, soldering and materials used for the same.
10. Welding defects in casting.
11. Dental Cements : classification, composition, manipulation, properties and uses : Zinc cements, copper cements, Zinc-oxide, eugenol cements, silicate cements, cavity liners, cavity varnishes, Resin cements..
12. Dental porcelain including porcelain fused to metal. Porcelain Furnace and fusing.
13. Mechanics of tooth cutting. Burs and points.
14. Abrasives and polishing agents.
15. Die and counter die materials including electroforming and electro-polishing.