

**Unit I****Chapter 1 : Cement and Concrete****1-1 to 1-28**

Types of cements, Bogue's compounds, structure of a hydrated cement paste, volume of hydrated product, porosity of cement paste, interfacial transition zone in concrete (ITZ), influence of ITZ on properties of concrete, types of elastic moduli, factors affecting elastic modulus of concrete.

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## Unit II

### Chapter 2 : Supplementary Cementitious Materials

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Fly ash, blast furnace slag, silica fume, rice husk ash, metakaolin, industrial waste or by-products, chemical composition and classification, effect on hydration process of portland cement, effect on workability of concrete, effect on the properties of hardened concrete, effect on durability of concrete.

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### Unit III

#### Chapter 3 : Chemical Admixtures

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Classification of admixtures, chemistry and mechanism, effect of admixtures on plastic properties and hardened properties of concrete, applications, specialty admixtures - viscosity modifying admixtures, corrosion-inhibiting admixtures, shrinkage-reducing admixtures.

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## Unit IV

### Chapter 4 : Fiber Reinforced Concrete

**4-1 to 4-22**

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**Unit V****Chapter 5 : Durability of Concrete****5-1 to 5-11**

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