

SYLLABUS

CE3403 - CONCRETE TECHNOLOGY

UNIT - I : CONSTITUENT MATERIALS

Cement - Different types - Chemical composition and Properties - Tests on cement - IS Specifications - Aggregates - Classification - Mechanical properties and tests as per BIS - Grading requirements - Water - Quality of water for use in concrete.

UNIT - II : CHEMICAL AND MINERAL ADMIXTURES

Accelerators - Retarders - Plasticisers - Super plasticizers - Water proofers - Mineral Admixtures like Fly Ash, Silica Fume, Ground Granulated Blast Furnace Slag and Metakaoline - Their effects on concrete properties.

UNIT - III : PROPORTIONING OF CONCRETE MIX

Principles of Mix Proportioning - Properties of concrete related to Mix Design - Physical properties of materials required for Mix Design - Design Mix and Nominal Mix - BIS Method of Mix Design - Mix Design Examples.

UNIT - IV : FRESH AND HARDENED PROPERTIES OF CONCRETE

Workability - Tests for workability of concrete - Slump Test and Compacting factor Test - Segregation and Bleeding - Determination of Compressive and Flexural strength as per BIS - Properties of Hardened concrete - Stress-strain curve for concrete - Determination of Modulus of elasticity.

UNIT - V : SPECIAL CONCRETES

Light weight concretes - High strength concrete - Fibre reinforced concrete - Ferrocement - Ready mix concrete - SIFCON - Shotcrete - Polymer concrete - High performance concrete - Self compacting concrete - Geopolymer Concrete.

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