CE6002 CONCRETE TECHNOLOGY

DETAILED SYLLABUS

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-Determination of Compressive and Flexural strength-Stress-strain curve for concrete-Determination of Young’s Modulus.

UNIT V SPECIAL CONCRETES

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

TEXTBOOKS

1. Gupta.B.L., Amit Gupta, "Concrete Technology", Jain Book Agency, 2010.

2. Shetty,M.S, "Concrete Technology", S.Chand and Company Ltd, New Delhi, 2003

REFERENCES

1. Santhakumar,A.R; "Concrete Technology" , Oxford University Press, New Delhi, 2007

2. Neville, A.M; "Properties of Concrete", Pitman Publishing Limited, London,1995

3. Gambir, M.L; "Concrete Technology", 3rd Edition, Tata McGraw Hill Publishing Co Ltd, New Delhi, 2007

4. IS10262-1982 Recommended Guidelines for Concrete Mix Design, Bureau of Indian Standards, New Delhi, 1998.

OBJECTIVES

To impart knowledge to the students on the properties of materials for concrete by suitable tests, mix design for concrete and special concretes.