

**DEPARTMENT OF CIVIL ENGINEERING****RCETCEAC08 - Civil Engineering Materials and Concrete Technology****Course outcomes:**

- Test all the concrete materials as per IS code.
- Determine the properties of fresh and hardened of concrete.
- Design special concretes and their specific applications.

Syllabus:**UNIT I****Construction Materials**

Tiles: For flooring, roofing and decorative – properties and uses.

Lime: Properties and uses. Timber: Varieties, properties, uses, defects, seasoning and preservation.

Foundations Introduction to different types of foundations – masonry footing, isolated, combined and strap, RCC footings, raft foundation, friction piles and bearing piles, caissons and coffer dams

Brick Masonries Bricks: Types, refractive and modular bricks and their application. Bonds in bricks, reinforced brick work, hollow block construction and rat trap masonry.

UNIT II**Concrete Technology**

Fresh Concrete: Definition, Cement: Types, composition, properties and uses. Coarse aggregate and fine aggregate, properties and uses. Physical tests on ingredient of fresh concrete as per I.S. Quality of water and water-cement ratio, segregation, and bleeding. Mix design, proportion, batching, workability, mixing, placing, compacting, various methods of curing, Test on fresh concrete as per IS.

UNIT III**Admixtures**

A brief description on commonly used admixtures and their effects on concrete. Hardened Concrete: Maturity, creep, shrinkage, Destructive and non-destructive tests as per IS: 13311 Mixed Design: as per IS: 10262.

Reference Text Books:

1. A Text-Book of Building Construction, S.P.Bindra and S.P.Arora, Dhanpat Rai Publications.