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| **20CE1T01: Building Materials and Construction** |

# COURSE OUTCOMES

# Students are able to

1. reproduce knowledge towards civil engineering materials used in construction.

2. describe about stones, bricks, tiles and their importance in building construction.

3. explain about brick and stone masonry in building construction.

4. interpret the application of lime, cement, wood and their importance in construction field.

5. prepare building components and various finishing’s in building construction.

**SYLLABUS:**

**UNIT- I**

**STONES, BRICKS AND TILES :** Properties of building stones - relation to their structural requirements, classification of stones - stone quarrying - precautions in blasting, dressing of stone, composition of good brick earth, various methods of manufacturing of bricks. Characteristics of good tile - manufacturing methods, types of tiles. Uses of materials like Aluminum, Gypsum, Glass and Bituminous materials - their quality.

**UNIT-II**

**MASONRY:** Types of masonry, English and Flemish bonds, Rubble and Ashlar Masonry Cavity and partition walls.

**WOOD:** Structure – Properties - Seasoning of timber - Classification of various types of woods used in buildings - Defects in timber.

Alternative materials for wood - Galvanized Iron, Fiver - Reinforced Plastics.

**UNIT-III**

**LIME AND CEMENT: Lime**: Various ingredients of lime - Constituents of lime stone -classification of lime - various methods of manufacture of lime. Cement: Portland cement- Chemical Composition - Hydration, setting and fineness of cement- Various types of cement and their properties- Various field and laboratory tests for Cement. Various ingredients of cement concrete and their importance - various tests for concrete.

**UNIT -IV**

**BUILDING COMPONENTS: Lintels**, arches, vaults, stair cases - types. Different types of floors - Concrete, Mosaic, Terrazzo floors, Pitched, flat roofs. Lean to roof, Coupled Roofs. Trussed roofs - King and Queen post Trusses. R.C.C Roofs, Madras Terrace and Pre-fabricated roofs.

**UNIT-V**

**FINISHINGS:** Damp Proofing and water proofing materials and uses - Plastering Pointing, white washing and distempering - Paints: Constituents of a paint - Types of paints – characteristics of paints- Painting of new/old wood- Varnish-form Works and Scaffoldings.

**Text Books:**

1. Building Materials by S.S. Bhavikatti, Vices publications House private ltd.
2. Building Construction by S.S. Bhavikatti, Vices publications House private ltd.
3. Building Materials by B.C. Punmia, Laxmi Publications private ltd.
4. Building Construction by B.C. Punmia, Laxmi Publications (p) ltd.

**Reference Books:**

1. Building Materials by S.K.Duggal, New Age International Publications.
2. Building Materials by P.C.Verghese, PHI learning (P) ltd.
3. Building Materials by M.L.Gambhir, Tata McGraw Hill Publishing Co. Ltd. New Delhi.
4. Building construction by P.C.Verghese, PHI Learning (P) Ltd.