II Year I Semester	**L**	**T**	**P**	**C**
Code: 17CE302	**4**	**1**	**0**	**3**

BUILDING MATERIALS AND CONSTRUCTION

Course Learning Objectives

1. Initiating the student with the knowledge of basic building materials and their properties.
2. Imparting the knowledge of course pattern in masonry construction and flat roofs and techniques of forming foundation, columns, beams, walls, sloped and flat roofs.
3. The student is to be exposed to the various patterns of floors, walls, different types of paints and varnishes.
4. Imparting the students with the techniques of formwork and scaffolding.
5. The students should be exposed to classification of aggregates, moisture content of the aggregate.

Course outcomes:

Upon the successful completion of the course:

1. The student should be able to identify different building materials and their importance in building construction.
2. The student is expected to differentiate brick masonry, stone masonry construction
3. The student understands about the constituents and usage of lime and cement in various constructions.
4. The student should have learnt the importance of building components
5. The student understands about various finishings.
6. The student is expected to know the classification of aggregates, sieve analysis and moisture content usually required 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 Aluminium, Gypsum, Glass and Bituminous materials – their quality.

UNIT II

Masonry& Wood:

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, Fiber – Reinforced Plastics, Steel, Aluminium.

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 Prefabricated roofs.

UNIT V

Finishings:

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

UNIT VI

Aggregates :

Classification of aggregate – Coarse and fine aggregates- particle shape and texture – Bond and Strength of aggregate – Specific gravity – Bulk Density, porosity and absorption – Moisture content of Aggregate-Bulking of sand – Sieve analysis.

TEXT BOOKS:

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

REFERENCES:

1. Building Materials by S.K.Duggal, New Age InternationalPublications.
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.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	2	3	1	1	3	1	1	1	1	3	3	3	3
CO2	3	2	2	3	1	1	1	1	1	1	1	3	3	1	3
CO3	3	2	2	1	3	1	1	1	1	1	1	3	3	1	3
CO4	3	2	2	1	1	1	1	1	1	1	1	3	3	1	3
CO5	3	2	2	1	1	1	1	1	1	1	1	3	3	1	3
CO6	3	3	2	1	1	1	1	1	1	1	1	3	3	1	3