



## Building Technology for Engineers (SYLLABUS)

<b>Course Code</b>	23CE2701A	<b>Year</b>	IV	<b>Semester</b>	I
<b>Course Category</b>	Open Elective-III	<b>Branch</b>	CIVIL	<b>Course Type</b>	Theory
<b>Credits</b>	3	<b>L-T-P</b>	3-0-0	<b>Prerequisites</b>	-
<b>Continuous Internal Evaluation</b>	30	<b>Semester End Evaluation</b>	70	<b>Total Marks:</b>	100

### Course Objectives:

The objective of this course is to:

1. Understand the properties and characteristics of basic building materials used in construction.
2. Explain the construction techniques involved in masonry, foundations, roofs, and structural components.
3. Apply knowledge of building components and finishing techniques in practical construction scenarios.
4. Analyze different materials such as aggregates, timber, cement, and their suitability for construction.
5. Understand the role of formwork, scaffolding, and modern construction materials.

### Course Outcomes:

Course will enable the student to:

CO	Statement	Blooms level
CO 1	Identify and explain properties and uses of various building materials used in construction.	L2
CO 2	Differentiate types of masonry construction and analyze the use of lime, cement, and timber in structures.	L4
CO 3	Explain building components such as floors, roofs, staircases, and finishing techniques.	L2
CO 4	Analyze properties and testing of cement, concrete, and aggregates used in construction.	L4
CO 5	Apply knowledge of aggregates, formwork, scaffolding, and finishing materials in construction practices.	L3

### Course Articulation Matrix:

CO\PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	2	1	1	–	1	–	–	1	1	2	2
CO2	3	3	2	2	1	–	–	–	1	1	1	3	2
CO3	3	2	2	1	1	–	1	–	1	1	1	2	2
CO4	3	3	2	3	2	–	–	–	1	1	1	3	3
CO5	3	2	3	2	2	–	1	–	1	1	1	3	2



## Syllabus

Unit No.	Content	Mapped COs
I	<b>Stones, Bricks and Tiles:</b> 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	CO1
II	<b>Masonry:</b> 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.	CO2
III	<b>Lime and Cement-Lime:</b> 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.	CO4
IV	<b>Building Components:</b> 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.	CO3
V	<b>Finishings and Aggregates:</b> Damp Proofing and water proofing materials and uses – Plastering Pointing, white washing and distempering. Paints: Constituents of a paint – Types of paints – Painting of new/old wood- Varnish. Form Works and Scaffoldings. 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	CO5

Learning Resource(s)
<b>Text Book(s)</b>
1. Building Materials, S. S. Bhavikatti, Vices publications House private ltd. 2. Building Construction, S. S. Bhavikatti, Vices publications House private ltd. 3. Building Materials, B. C. Punmia, Laxmi Publications private ltd. 4. Building Construction, B.C. Punmia, Laxmi Publications(p)ltd.
<b>Reference Book(s)</b>



1. Building Materials, S. K. Duggal, New Age International Publications.
2. Building Materials, P. C. Verghese, PHI learning(P)ltd.
3. Building Materials, M. L. Gambhir, Tata McGraw Hill Publishing Co. Ltd. NewDelhi.
4. Building construction, P. C. Verghese, PHI Learning(P)Ltd.
5. Building Materials, Construction and Planning, S.Mahaboob Basha, Anuradha Publications, Chennai.

**Web Materials:**

- 1.Civil Engineering - Building materials and Construction: <https://nptel.ac.in/courses/105102088>
- 2.Basic Construction Materials: <https://nptel.ac.in/courses/105106206>