INSTITUTE	**FACULTY OF TECHNOLOGY**
PROGRAM	**BACHELOR OF TECHNOLOGY (CIVIL ENGINEERING)**
SEMESTER	**4**
COURSE TITLE	**BUILDING CONSTRUCTION TECHNOLOGY**
COURSE CODE	**01CI1409**
COURSE CREDITS	**3**

Objective:

1 To acquaint the student for new construction technologies its use and application at various stages
2 To understand types of doors and stairs and its uses
3 To know about the supporting structures and building amenities
4 To build awareness about the type of masonry, floors, and roofs

Course Outcomes: After completion of this course, student will be able to:

1 Recognize the related entities involved in the building construction process.
2 Choose appropriate masonry bond and building components by considering various factors affecting strength and appearance of building
3 Analysis the practices and techniques for construction works
4 Predict special work treatment require to building components.

Pre-requisite of course: None

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
2	0	2	50	30	20	0	0

Contents : Unit	Topics	Contact Hours
1	**Foundation** Overview of Building Construction, Substructure components, Super structure components, Shallow Foundation: Necessity, types Spread footing, Combined footing, Strap footing, Raft foundation, foundation in Black cotton soil, setting out, excavation, construction, failures of foundation and remedial measures	4
2	**Masonry Construction** Stone Masonry: Technical terms, joints, Classification of Stone masonry, Brick Masonry: Technical terms, bonds in brickwork, Other Masonry: Composite masonry, Hollow blocks masonry, Partition Wall, Cavity walls, Lintels & Arches: Lintels – types, construction. Arches – technical terms, types, construction.	6

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Contents : Unit	Topics	Contact Hours
3	**Building Components** Doors: Location, technical terms, size, types, construction, suitability, Windows: Factors affecting the selection of size, shape, location, and no. of windows, types, construction, suitability, fixtures and fastenings, Ventilators, Staircases: Definition, technical terms, requirements of the good stair, fixing of going and rise of a step, types of steps, classification, stair design/planning, elevators, escalators. , Floorings: Introduction, essential requirements of a floor, factors affecting selection of flooring material, types of ground floors and upper floor, pre-cast concrete floor., Roof: Introduction, requirements of good roof technical terms, classification, types of roofs, and roof covering, Wall Finishes: Plastering, pointing, and painting	14
4	**Special Work and Treatments** Timbering in trenches, scaffoldings, water resistant, thermal insulation, acoustical construction and anti-termite treatment	4
Total Hours		**28**

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Experiment-1** Model making of substructure component of building. The model highlights the different types of shallow foundations such as isolated footings, combined footings, strip footings, and mat (raft) foundations. Materials such as cardboard, thermocol, plywood, clay, or plaster of Paris can be used to represent soil layers, while steel wires or sticks may represent reinforcement bars	4
2	**Experiment-2** Model making of different types of brick/stone masonry Students prepare models of different types of masonry such as: Brick Masonry – English bond, Flemish bond, Header bond, Stretcher bond, Stone Masonry – Random rubble, Ashlar masonry, Dry stone masonry. Model constructed using scaled-down bricks, stones, or substitute materials (such as thermocol, cardboard, clay, or plaster)	4
3	**Experiment-3** Model making of different types of Doors /Windows. Models may include: Doors – panel doors, flush doors, glazed doors, louvered doors, revolving doors, sliding doors, etc.; Windows – casement windows, sliding windows, pivoted windows, bay windows, dormer windows, and fixed windows. Materials Used: Cardboard, plywood sheets, foam boards, thermocol, wooden sticks, acrylic sheets, glue, cutters, paints, and other craft materials.	4

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
4	**Experiment-4** Model making of different types of Roofing components. Through these models, learners can visualize and compare: Flat Roofs, Pitched Roofs – sloped designs such as gable, hip, and lean-to, Trussed Roofs – king post, queen post, or steel trusses, Curved Roof. The models are typically constructed using cardboard, plywood, thermocol, balsa wood, or 3D-printed components, with joints made by adhesives, pins, or threads to mimic real-life connections	4
5	**Experiment-5** Model making of different types of staircases Students can prepare miniature models of various staircase types such as: Straight flight Staircase , Dog-Legged Staircase, Open Well Staircase, Spiral Staircase, Quarter Turn Staircase, Helical Staircase. By using materials like cardboard, thermocol, wooden strips, foam board, or 3D printing, students can represent the proportions, geometry, and functionality of these staircases.	4
6	**Experiment-6** Preparation of Poster/Sketch for /scaffolding/ timbering in trenches	4
7	**Experiment-7** Preparation of poster/sketch for Floors/ wall finishes /special treatments	4
Total Hours		**28**

Textbook :

1 Building Construction , B. C. Punamia, Laxi Publication, 2016

References:

1 Building Construction, Building Construction, S. C. Rangwala, Charotar Publishing House, 2019

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
10.00	10.00	30.00	15.00	15.00	20.00

Instructional Method:

1 At the start of course, the course delivery pattern, prerequisite of the subject will be discussed

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Instructional Method:

2 Lectures will be taken in class room with the use of multi-media presentations, black board – mix of both

3 Attendance is compulsory in lectures and laboratory which carries a 5% component of the overall evaluation

4 Minimum two internal exams will be conducted and average of two will be considered as a part of 15% overall evaluation

5 Assignments based on course content will be given to the students at the end of each unit/topic and will be evaluated at regular interval. It carries a weightage of 5%

6 Surprise tests/Quizzes will be conducted which carries 5% component of the overall evaluation.

Supplementary Resources:

1 http://www.nptel.iitm.ac.in/courses/

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