

Building Construction Technology
01CI0409
Objective of the Course:

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

Credit Earned: 03
Students learning outcomes:

After successful completion of the course, it is expected that student will be able to,

1. Recognize the related entities involved in the building construction process.
2. Identify the factors to be considered in the planning and construction of buildings.
3. Discuss the practices and techniques for construction works.
4. Apply learning to further research in sustainable civil engineering materials, construction technology and construction management field

Teaching and Examination Scheme

Teaching Scheme (Hours)			Credits	Theory Marks			Tutorial/ Practical Marks		Total Marks
Theory	Tutorial	Practical		ESE (E)	IA (M)	CSE (I)	Viva (V)	Term Work (TW)	
03	00	00	03	50	30	20	-	-	100

Detailed Syllabus

Sr No.	Title of the unit	Number of hours
1	Foundation	08
	Shallow Foundation: Necessity, types, setting out, excavation, construction, failures of foundation and remedial measures. Deep Foundation: Necessity, types, Pile Foundation: Introduction, uses, selection of pile, types of piles, pile cap and pile shoe, pile driving methods, causes of failures of piles.	

2	Masonry Construction	10
	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. Wall Finishes: Plastering, pointing, and painting	
3	Concrete Elements & Form Work	05
	Plain cement concrete, reinforced cement concrete, pre-cast and cast-in-situ construction. Formwork: Formwork for R.C.C. wall, slab, beam, and column, centering for arches of large spans, slip formwork – horizontal & vertical.	
4	Building Components	12
	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.	
5	Special Work and Treatments	07
	Timbering in trenches, control of groundwater in excavation, types of scaffoldings, shoring, underpinning, coffer dams, caisson, diaphragm walls, demolition of structures, fire resistant, water resistant, thermal insulation, acoustical construction and anti-termite treatment.	
	Total	42

Suggested Theory Distribution

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

Distribution of Theory for course delivery and evaluation					
Remember	Understand	Apply	Analyze	Evaluate	Create
20%	35%	30%	15%	00%	00%

Instructional Method and Pedagogy:

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

Recommended Study Material**Reference Books:**

1. Building Construction by B. C. Punamia
2. Building Construction by S. C. Rangwala
3. Building Construction by Gurucharan Singh
4. Heavy Construction by Vazirani & Chandola
5. Building Construction by Sushil Kumar
6. Building Construction by P.C Varghese, Prentice-Hall of India, New Delhi
7. Hand book of Heavy construction: O'Brien, Havers & Stubb
8. Bureau of Indian Standard

List of Open-Source Software/learning website:

- <http://www.nptel.iitm.ac.in/courses/>