

# GUJARAT TECHNOLOGICAL UNIVERSITY

B.E Semester: 4

Civil Engineering

Subject Code 140602

Subject Name Building Construction

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| Sr.No | Course contents   |
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| 1     | Introduction:<br>Overview of construction practices, theory and methods.  |
| 2     | Subsurface Investigation:<br>Objectives, methods of boring like wash boring, percussion etc.,   |
| 3     | Shallow Foundations:<br>Necessity, types, setting out, excavation, construction, failures of foundation and remedial measures.  |
| 4     | Masonry Construction :<br>a) Stone masonry: Technical terms, lifting appliances, joints, types – random (un-coursed) rubble, coursed rubble, dry rubble masonry, Ashlar masonry- Ashlar fine, chamfered fine.<br>b) Brick masonry: Technical terms, bonds in brick work- English bond, single & double Flemish bond, garden wall bond, raking bond, Dutch bond.<br>c) Composite masonry: Stone facing with brick backing, brick facing with concrete backing.<br>d) Hollow concrete blocks and construction<br>e) Cavity walls: Brick cavity walls, position of cavity at foundation, roof and at opening levels.<br>f) Lintels & arches: Lintels – types, construction. Arches – technical terms, types – brick arches, rough, axed, stone arches, flat – semi circular. |
| 5     | Plain and Reinforced Concrete Construction: Pre-cast and cast-in-situ construction  |
| 6     | Doors and Windows :<br>a) Doors: Location, technical terms, size, types, construction, suitability.<br>b) Windows: Factors affecting selection of size, shape, location and no. of windows, types, construction, suitability, fixtures and fastenings.<br>c) Ventilators: Ventilators combined with window, fan light.  |
| 7     | Stairs and Staircases: Definition, technical terms, requirements of good stair, fixing of going and rise of a step, types of steps, classification, example – stair planning, elevators, escalators.  |

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| 8  | <p>Floorings :</p> <p>Introduction, essential requirements of a floor, factors affecting selection of flooring material, types of ground floors, brick, flag stone, tiled cement-concrete, granolithic, terrazzo, marble, timber flooring, upper floor- timber, timber floor supported on RSJ flag stone floor resting on RSJ, jack arch floor, reinforced concrete floor, ribbed floor, pre cast concrete floor.</p> |
| 9  | <p>Roofs and Roof Coverings:</p> <p>Introduction, requirements of good roof technical terms, classification, types of roof coverings for pitched roof. A.C. sheet roofs – fixing of A.C. sheets, laying of big six sheets, G.I. Sheets roofs, slates, flat roof – advantages, dis-advantages, types of flat terraced roofing.</p>   |
| 10 | <p>Wall Finishes:</p> <p>Plastering, pointing and painting.</p>   |
| 11 | <p>Temporary Works :</p> <p>Timbering in trenches , types of scaffoldings, shoring, underpinning</p>  |
| 12 | <p>Special Treatments:</p> <p>Fire resistant, water resistant, thermal insulation, acoustical construction and anti-termite treatment.</p>  |

Term Work: Term work shall be based on the above mentioned course content.

Field Visit: Field visits based on course content are suggested.

#### Reference Books:

1. Building Construction by Dr. B. C. Punamia
2. Building Construction by Sushil Kumar
3. Building Construction by Gurcharan Singh
4. Building Construction by S. C. Rangwala
5. Building Construction by P.C Varghese, Prentice-Hall of India, New Delhi
6. Indian Standard Institution, National Building Code of India, ISI, 1984, New Delhi