

# GUJARAT TECHNOLOGICAL UNIVERSITY

## Diploma in Architectural Assistantship

Semester: 3

**Subject Code**

**Subject Name** BUILDING CONSTRUCTION - I

Sr. No.	Course content
1.	<b>FOUNDATION :</b> 1.1 Know the purpose of foundation. 1.2 Function of foundation 1.3 Know the significance of safe B.C. of soil 1.4 Define safe B.C. of soil - Importance of S.B.C. of soil in relation to foundation design. 1.5 Explain the various methods to improve B.C. of soil. 1.6 Suggest proper methods to improve B.C. of soil for the given situation. 1.7 Types of foundations –Shallow, Deep etc 1.8 Draw the sketches of different types of shallow foundation. 1.9 Suggest the type of foundation for the various situations (1) Wall, (2) Isolated column, (3) Column carrying unequal load, (4) space limitations, (5) Low S.B.C. of soil and heavy loads, (6) Heavy load from steel column. 1.10 Deep foundation 1.11 Pile Foundation 1.12 Classification of Pile according to its material and function. 1.13 State the situation where the pile foundation is necessary. 1.14 Know the treatment required for providing foundation in Black cotton soil for various situations 1.16 Know the causes of failure of foundation. 1.17 State and explain the causes of failure of foundation: 1.17.1 Non-uniform settlement 1.17.2 Horizontal movement of soil 1.17.3 Swelling and shrinkage 1.17.4 Lateral pressure 1.17.5 Root of trees etc. 1.17.6 Action of weather 1.18 Explain the method of setting out foundation plan on site. 1.19 Fixation of centre-line on ground. 1.20 Suggest the type of foundation for the various situations
2.	<b>MASONRY :</b> <b>PART A - BRICK MASONRY:</b> a. Define the terms related to Brick Masonry – header, stretcher, bond, closer, frog, quoins, course, face, back, hearting, joint, bat, etc. b. State the general principles to be followed in construction of Brick Masonry c. Explain the different types of Bonds: - English Bond, Flemish Bond, Stretcher bond, header Bond, Racking Bond, Zigzag Bond, Garden

	<p>Wall Bond</p> <ol style="list-style-type: none"> <li>Draw the plan and elevation of above bonds.</li> <li>Compare English Bond with Flemish Bond.</li> <li>Explain the various types of junctions in Brick Masonry.</li> <li>Reinforced Brick Masonry - explain the procedure and purpose of Reinforced Brick Work</li> </ol> <p><b>PART B - STONE MASONRY</b></p> <ul style="list-style-type: none"> <li>Define the terms related to Stone Masonry</li> <li>State the stages of stone-dressing:</li> <li>State and explain the different types of stone dressing:</li> <li>Draw joints in stone masonry, such as Butt Joint,(b) Rebated joint; (c) Rusticated joint; (d) Channelled joint (e) dowel joints.</li> <li>Explain with sketches types of stone masonry:</li> <li>Rubble masonry - Un coursed Rubble, Coursed Rubble, Random Rubble, Dry Rubble</li> <li>Ashlar Masonry: Ashlar fine Ashlar rough tool Ashlar chamfered Ashlar facing</li> </ul> <p><b>PART C- COMPARE BRICK MASONRY WITH STONE MASONRY</b></p>
<b>3.</b>	<p><b>LOAD BEARING AND FRAME STRUCTURE :</b></p> <ol style="list-style-type: none"> <li>Understand the principle of Load-Bearing and Frame Structure.</li> <li>Compare Load Bearing Structure with Frame Structure.</li> <li>Merit and Demerits of Load Bearing Structure and Frame Structure</li> </ol>
<b>4.</b>	<p><b>OPENINGS :</b></p> <ol style="list-style-type: none"> <li>Lintels: Function of lintel Classification of lintels of different materials, pre-cast and cast in situ</li> <li>Arches Explain various parts of an arch – Soffit, Springing line, Rise Key, Haunch, Span, Rise, Spandrel &amp; Skewback etc.</li> <li>Explain with sketches the types of arches in relation to shapes &amp; material</li> <li>Describe stage wise the methods of construction of arches with sketches</li> <li>Doors --- Know the function, location, terms, general sizes, location &amp; types battened, ledged, framed &amp; braced door. panelled doors: Glazed doors, flush &amp; louvered doors, Revolving door ,</li> <li>Windows -- Know the function, location, terms, general sizes, location &amp; types Double hung, Casement, Pivoted, Glazed, Louvered</li> <li>Ventilators -- Know the function, location, terms, general sizes, location &amp; types Top hung Bottom hung Louvered/fixed ventilators.</li> </ol>
<b>5.</b>	<p><b>PARTITION WALLS :</b></p> <p>Various types of partitions like clay-block, glass-block, brick, hollow-block, concrete, straw-board, wooden, plaster-slab, metal &amp; asbestos – cement, gypsum board partitions.</p>

6.	<b>PLASTERING &amp; POINTING :</b> 6.1 Introduction 6.2 Preparation of surface for plastering 6.3 Various types like mud, lime, cement & stucco plastering 6.4 Pointing - general 6.5 Preparation of surface for pointing 6.6 Various types of pointing
----	---

### **Reference Books:**

1. Building Construction By Sushil kumar
2. Building Construction By W.B.Mckay.Vol 1,2,3,4.
3. Elementary Building Construction By Mitchell
4. Building Construction By S.P. Arora & S.B.Bindra
5. Building Construction By Medlycol.
6. Building Construction By Rangwala.