

# BUILDING CONSTRUCTION I

AR153

**Lecture** : 2  
**Tutorial** : 0  
**Practical** : 3

**Year** : I  
**Part** : II

## Course Objectives:

The main objective is to introduce the students to the basic process and techniques of building construction. The specific objectives use to gain Knowledge about major building components in the substructure and superstructure, To gain knowledge of building construction materials and observe the practical implementations field visits, focused on traditional Nepalese architecture.

- 1 Introduction (1 hour)**
  - 1.1 Construction techniques as per building design and working drawing
  - 1.2 Importance of proper construction work for design output
  - 1.3 Importance of national guidelines in building construction- Nepal Building Code (NBC) and Mandatory Rules of Thumb (MRT)
  
- 2 Site works and Setting Out (2 hours)**
  - 2.1 Commencement, preconstruction of work vis possession of site
  - 2.2 Preparation of site (potential identification and clearing) and building layout
  
- 3 Soil Investigation (4 hours)**
  - 3.1 Soil types and their characteristics
  - 3.2 Foundations in weak soil with reference to black cotton soil
  - 3.3 Method of improvement of soil bearing capacities
  
- 4 Excavation (1 hour)**
  - 4.1 Requirement of excavation
  - 4.2 Process of excavation
  - 4.3 Challenges of excavation (hazards and safety)
  
- 5 Timbering in Trenches (2 hours)**
  - 5.1 Timbering in shallow foundations in hard soil to loose soil
  - 5.2 Timbering in shallow foundations in water logged soil

**6 Foundation and their types (6 hours)**

- 6.1 Introduction to foundation
- 6.2 Functions and Characteristics of foundation
- 6.3 Types of shallow Foundation – Spread, Strap, Combined and Raft Foundation
- 6.4 Types of Deep foundation – Pile, Well and Peer Foundation
- 6.5 Foundation design in Traditional Nepalese Architecture

**7 Damp Protection (4 hours)**

- 7.1 Moisture movement in building
- 7.2 Sources, causes and defects of dampness
- 7.3 Methods of damp proofing, damp proof course, materials used for damp protection
- 7.4 Selection of appropriate DPC materials for different parts of building

**8 Floor Structure (4 hours)**

- 8.1 Introductions to floors, Classification and materials of construction
- 8.2 Ground floor – Solid Ground Floor and Suspended Timber Floor
- 8.3 Upper Timber Floor

**9 Masonry wall (4 hours)**

- 9.1 Introduction to wall types, materials and mortars used
- 9.2 Stone Masonry
- 9.3 Brick Masonry
- 9.4 Concrete block masonry
- 9.5 Trends in Masonry Wall
  - Hollow Block Masonry – Concrete and Brick
  - AAC Block
  - Others

**10 Openings in wall (2 hours)**

- 10.1 Lintels, Arches and their types
- 10.2 Materials of construction

**Theory Assignments**

- 1. Field Visits and reports
- 2. Assessments with MCQ

**Practical****(45 Hours)****Drawing sheets****Evaluation of Practical Assignment**

S.No	Units	Hours
1	2	3
2	3	3
3	4	6
4	5	9
5	7	6
6	8	6
7	9	6
8	10	6
<b>Total</b>		<b>45 Hours</b>

**Final Exam**

The questions will cover all the chapters in the syllabus. The evaluation scheme will be as indicated in the table below

Chapter	Hours	Mark distribution*
1,2,3,4,10	10	6
5	2	6
6,7	10	6
8	4	6
9	4	6
Total	30	30

\* There may be minor deviation in marks distribution.

**References**

1. R. Barry, "The Construction of Buildings: Volume 1-5"
2. R. Chudley, "Construction Technology: Volume 1-4"
3. Chung, "Building Construction Illustrated"
4. Hans Banz, "Building Construction Details (Practical Drawings)"
5. Sushil Kumar, "Building Construction"
6. Gurucharan Singh, "Building Construction and Materials"
7. Rangawala, "Building Construction"
8. P.C. Varghese, "Building Construction"
9. WB Mackay, "Building Construction"
10. Mitchell, "Building Construction"