

# BUILDING CONSTRUCTION III

ENAR 303

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

**Year : III**  
**Part : I**

## Course Objectives:

The objective of this course is to provide concepts on different building structures and its components. By the end of this course, students will be able to integrate steel structures, roof trusses, concrete floors and pavements, staircases, joints, claddings, false ceilings, curtain walls, and lightweight partitions to develop coherent structural and architectural solutions for diverse building types.

- 1 Steel Structure (4 hours)**
  - 1.1 Shapes of structural steel, types of connection in steel works (Riveting, bolting and welding methods)
  - 1.2 Types of steel structural members: Beams, columns and girders
  - 1.3 Details at foundation level, beam and column connection
  
- 2 Roof Trusses (4 hours)**
  - 2.1 Timber and steel trusses, types and its details
  - 2.2 Flat and pitched trusses (Timber and steel truss) and its details
  
- 3 Reinforced Cement Concrete Floors (4 hours)**
  - 3.1 Introduction to floors
  - 3.2 Types of floor, upper floors/framed and self - centering floors
  - 3.3 Typical details
  
- 4 Concrete Staircase (4 hours)**
  - 4.1 Precast and cast-in-situ concrete staircase
  - 4.2 Types, construction and details
  
- 5 Joints in Concrete (4 hours)**
  - 5.1 Joints in concrete: Construction joint, expansion joint, contraction joint, isolation and sliding joint, joints between precast concrete cladding panels
  - 5.2 Location and spacing of joints for different elements; Slabs, beams, columns, walls
  - 5.3 Bonding of new to old concrete
  - 5.4 Materials used in expansion joints: Joints in footings, walls, frames, floors, roof

**6 Claddings (4 hours)**

- 6.1 Cladding for external and internal finishes, necessities and usage
- 6.2 Cladding types and detailing
- 6.3 Plasterwork, paints, dry lining, tiles, quarry tiles and internal fixings

**7 False Ceiling (2 hours)**

- 7.1 Types and usage of false ceiling
- 7.2 Materials and construction technology

**8 Cavity Walls and Partitions (4 hours)**

- 8.1 Cavity walls, purpose, advantages and disadvantages
- 8.2 Curtain walls, materials used and concept of load transference
- 8.3 Lightweight partitions, materials used and its requirements
- 8.4 Steel framed partitions

**Practical (45 hours)**

Preparation of drawings and detailing of:

- 1. Steel structure
- 2. Roof truss
- 3. Concrete floors
- 4. Concrete staircase (Cast-in-situ and precast)
- 5. Joints in concrete
- 6. Detailing of cladding
- 7. False ceiling
- 8. Walls and partitions

**Final Exam**

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

<b>Chapter</b>	<b>Hours</b>	<b>Marks distribution*</b>
1	4	4
2	4	4
3	4	4
4	4	4
5	4	4
6	4	4
7	2	2
8	4	4
<b>Total</b>	<b>30</b>	<b>30</b>

\* There may be minor deviation in marks distribution.

## References

1. Barry, R. (2000). The construction of buildings (Vols. 1–5). BSP Professional.
2. Chudley, R. (2010). Construction technology (Vols. 1–4). ELBS with Longman.
3. Banz, H. (1983). Building Construction Details: Practical Drawings. United Kingdom: Van Nostrand Reinhold Company.
4. Kumar, S. (2010). Building construction. Standard Publishers-Distributors.
5. Singh, G. (2019). Building construction and materials. Amit Publisher and Distributors.
6. Rangwala, S. C. (2009). Building construction. Charotar Publishing House Pvt. Limited.
7. Varghese, P. C. (2016). Building Construction. India: Prentice Hall India Pvt., Limited.