

| LESSON PLAN                        |                                         |                                                                                                                                                                                                                        |           |
|------------------------------------|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Department: Civil Engineering      | Semester: 3rd SEC-A                     | Name of the Teaching Faculty: MEGHNA PRIYADARSHANI                                                                                                                                                                     |           |
| Subject:-Th1 BUILDING CONSTRUCTION | No. of Days/Week<br>Class allotted:- 03 | Semester from date:- 14/07/2025 to 15/11/2025<br>No. of Weeks:-18<br>Topics to be covered:-                                                                                                                            |           |
| Week                               | Class Day                               | Topics                                                                                                                                                                                                                 | Remarks   |
| 9th                                | 1st                                     | <b>Unit: 1 Overview of Building Components : Classification of Buildings as per National Building Code Group A to I, as per Types of Constructions- Load Bearing Structure, Framed Structure, Composite Structure.</b> | <b>4</b>  |
|                                    | 2nd                                     | Building Components – Functions of Building Components                                                                                                                                                                 |           |
| 10th                               | 1st                                     | substructure – Foundation, Plinth.                                                                                                                                                                                     |           |
|                                    | 2nd                                     | Superstructure – Walls, Partition wall, Cavity wall, Sill, Lintel, Doors and Windows, Floor, Mezzanine floor, Roof, Columns, Beams, Parapet                                                                            |           |
|                                    | 3rd                                     | <b>Unit: 2 Construction of Substructure : Job Layout: Site Clearance, Layout for Load Bearing Structure and Framed Structure by Center Line and Face Line Method, Precautions.</b>                                     | <b>8</b>  |
| 11th                               | 1st                                     | Earthwork: Excavation for Foundation, Timbering and Strutting,                                                                                                                                                         |           |
|                                    | 2nd                                     | Earthwork for embankment, Material for plinth Filling, Tools and plants used for earthwork.                                                                                                                            |           |
|                                    | 3rd                                     | Foundation: Functions of foundation, Types of foundation                                                                                                                                                               |           |
| 13th                               | 1st                                     | Shallow Foundation, Stepped Footing, Wall Footing, Column Footing, Isolated and Combined Column Footing, Raft Foundation, Grillage Foundation                                                                          |           |
|                                    | 2nd                                     | Deep Foundation – Pile Foundation                                                                                                                                                                                      |           |
| 14th                               | 1st                                     | Well foundation and Caissons                                                                                                                                                                                           |           |
|                                    | 2nd                                     | Pumping Methods of Dewatering, Deep wells, Well points, Cofferdams (Introduction only).                                                                                                                                |           |
|                                    | 3rd                                     | <b>Unit: 3 Construction of Superstructure : Stone Masonry: Terms used in stone masonry- facing, backing, hearting, through stone, corner stone, cornice.</b>                                                           | <b>12</b> |
| 15th                               | 1st                                     | Types of stone masonry: Rubble masonry, Ashlar Masonry and their types                                                                                                                                                 |           |
| 16th                               | 1st                                     | Joints in stone masonry and their purpose. Selection of Stone Masonry, Precautions to be taken in Stone Masonry Construction                                                                                           |           |
|                                    | 2nd                                     | Brick masonry: Terms used in brick masonry- header, stretcher, closer, quoins, course, face, back, hearting, bat bond, joints, lap, frog line, level and plumb.                                                        |           |
|                                    | 3rd                                     | Bonds in brick masonry- header bond, stretcher bond, English bond and Flemish bond.                                                                                                                                    |           |
| 17th                               | 1st                                     | Requirements of good brick masonry. Junctions in brick masonry and their purpose and procedure.                                                                                                                        |           |
|                                    | 2nd                                     | Precautions to be observed in Brick Masonry Construction. Comparison between stone and Brick Masonry. T                                                                                                                |           |
|                                    | 3rd                                     | Tools and plants required for construction of stone and brick masonry. Hollow concrete block masonry and composite masonry                                                                                             |           |
| 18th                               | 1st                                     | Scaffolding and Shoring: Purpose, Types of Scaffolding, Process of Erection and Dismantling                                                                                                                            |           |
|                                    | 2nd                                     | Purpose and Types of Shoring,                                                                                                                                                                                          |           |
|                                    | 3rd                                     | Underpinning. Formwork: Definition of Formwork, Requirements of Formwork                                                                                                                                               |           |

|               |                                                                                                                                                                                                                                                                                       |           |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Extra Classes | Materials used in Formwork, Types of Formwork, Removal of formwork.                                                                                                                                                                                                                   |           |
|               | <b>Unit: IV Building Communication and Ventilation : Horizontal Communication: Doors –Components of Doors, Full Paneled Doors, Partly Paneled and Glazed Doors, Flush Doors, Collapsible Doors, Rolling Shutters, Revolving Doors, Glazed Doors. Sizes of Door recommended by BIS</b> | <b>8</b>  |
|               | Windows: Component of windows, Types of Windows – Full Paneled, Partly Paneled and Glazed, wooden, Steel, Aluminum windows, Sliding Windows, Louvered Window,                                                                                                                         |           |
|               | Bay window, Corner window, clear storey window, Gable and Dormer window, Skylight. Sizes of Windows recommended by BIS. Ventilators                                                                                                                                                   |           |
|               | Fixtures and fastenings for doors and windows                                                                                                                                                                                                                                         |           |
|               | Material used and functions of Window Sill and Lintels, Shed / Chajja.                                                                                                                                                                                                                |           |
|               | Vertical Communication: Means of Vertical Communication- Stair Case, Ramps, Lift, Elevators                                                                                                                                                                                           |           |
|               | Escalators. Terms used in staircase steps, tread, riser, nosing, soffit, waist slab, baluster, balustrade, scotia, hand rails, newel post, landing, headroom, winder.                                                                                                                 |           |
|               | Types of staircase (On the basis of shape): Straight, dog-legged, open well, Spiral, quarter turn, bifurcated, Three quarter turn and Half turn, (On the basis of Material): Stone, Brick, R.C.C., wooden and Metal.                                                                  |           |
|               | <b>Unit: V Building Finishes : Floors and Roofs: Types of Floor Finishes and its suitability- Kota, Marble, Granite, Ceramic Tiles, Vitrified,</b>                                                                                                                                    | <b>13</b> |
|               | Chequered Tiles, Paver Blocks, Concrete Floors, wooden Flooring, Skirting and Dado                                                                                                                                                                                                    |           |
|               | Process of Laying and Construction,                                                                                                                                                                                                                                                   |           |
|               | Finishing and Polishing of Floors,                                                                                                                                                                                                                                                    |           |
|               | Roofing Materials- RCC, Mangalore Tiles, AC Sheets, G.I. sheets, Corrugated G.I. Sheets, Plastic and Fibre Sheets                                                                                                                                                                     |           |
|               | Types of Roof: Flat roof, Pitched Roof- King Post truss, Queen Post Truss, terms used in roofs.                                                                                                                                                                                       |           |
|               | Wall Finishes: Plastering – Necessity of Plastering,                                                                                                                                                                                                                                  |           |
|               | Procedure of Plastering, Single Coat Plaster, Double Coat Plaster,                                                                                                                                                                                                                    |           |
|               | Rough finish, Neeru Finishing and Plaster of Paris (POP).                                                                                                                                                                                                                             |           |
|               | Special Plasters- Stucco plaster, sponge finish, pebble finish.                                                                                                                                                                                                                       |           |
|               | Plaster Board and Wall Claddings. Precautions to be taken in plastering, defects in plastering.                                                                                                                                                                                       |           |
|               | Painting – Necessity, Types of painting and procedure of Painting.                                                                                                                                                                                                                    |           |
|               | Painting –Necessity,                                                                                                                                                                                                                                                                  |           |
|               | Surface Preparation for painting, Methods of Application.                                                                                                                                                                                                                             |           |

Meghna Priyadarshani

SIGNATURE OF THE FACULTY

| LESSON PLAN                                                  |                                                       |                                                                                                                                                                                             |         |
|--------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| <b>Department:</b><br>Civil Engineering                      | <b>Semester:</b> 5th SEC-B                            | <b>Name of the Teaching Faculty:</b> MEGHNA PRIYADARSHANI                                                                                                                                   |         |
| <b>Subject:-Th2</b><br><b>STRUCTURAL</b><br><b>DESIGN-II</b> | <b>No. of Days/Week</b><br><b>Class allotted:- 04</b> | <b>Semester from date:- 14/07/2025 to 15/11/2025</b><br><b>No. of Weeks:-18</b><br><b>Topics to be covered:-</b>                                                                            |         |
| Week                                                         | Class Day                                             | Topics                                                                                                                                                                                      | Remarks |
| 9th                                                          | 1st                                                   | <b>Chapter: 1 Introduction:</b><br><b>1.1 Common steel structures, Advantages &amp; disadvantages of steel structures.</b>                                                                  | 5       |
|                                                              | 2nd                                                   | 1.2 Types of steel, properties of structural steel.                                                                                                                                         |         |
|                                                              | 3rd                                                   | 1.3 Rolled steel sections, special considerations in steel design.                                                                                                                          |         |
|                                                              | 4th                                                   | 1.4 Loads and load combinations.,                                                                                                                                                           |         |
| 10th                                                         | 1st                                                   | 1.5 Structural analysis and design philosophy, 1.6 Brief review of Principles of Limit State design.                                                                                        |         |
|                                                              | 2nd                                                   | <b>Chapter: 2 Structural Steel Fasteners and Connections.</b><br><b>2.1 Bolted Connections</b><br><b>2.1.1 Classification of bolts, advantages and disadvantages of bolted connections.</b> | 10      |
|                                                              | 3rd                                                   | 2.1.2 Different terminology, spacing and edge distance of bolt holes.<br>2.1.3 Types of bolted connections.                                                                                 |         |
|                                                              | 4th                                                   | 2.1.4 Types of action of fasteners, assumptions and principles of design.                                                                                                                   |         |
| 11th                                                         | 1st                                                   | 2.1.5 Strength of plates in a joint, strength of bearing type bolts (shear capacity& bearing capacity), reduction factors, and shear capacity of HSFG bolts.                                |         |
|                                                              | 2nd                                                   | 2.1.6 Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces) 2.1.7 Efficiency of a joint.                                                  |         |
| 12th                                                         | 1st                                                   | 2.2 Welded Connections:                                                                                                                                                                     |         |
|                                                              | 2nd                                                   | 2.2.1 Advantages and Disadvantages of welded connection                                                                                                                                     |         |
|                                                              | 3rd                                                   | 2.2.2 Types of welded joints and specifications for welding                                                                                                                                 |         |
| 13th                                                         | 1st                                                   | 2.2.3 Design stresses in welds.                                                                                                                                                             |         |
|                                                              | 2nd                                                   | 2.2.4 Strength of welded joints.                                                                                                                                                            |         |
| 14th                                                         | 1st                                                   | <b>Chapter: 3 Design of Steel tension Members, 3.1 Common shapes of tension members.</b>                                                                                                    | 10      |
|                                                              | 2nd                                                   | 3.1 Common shapes of tension members.                                                                                                                                                       |         |
|                                                              | 3rd                                                   | 3.1 Common shapes of tension members.                                                                                                                                                       |         |
|                                                              | 4th                                                   | 3.2 Maximum values of effective slenderness ratio.                                                                                                                                          |         |
| 15th                                                         | 1st                                                   | 3.2 Maximum values of effective slenderness ratio.                                                                                                                                          |         |
|                                                              | 2nd                                                   | 3.2 Maximum values of effective slenderness ratio.                                                                                                                                          |         |
|                                                              | 3rd                                                   | 3.3 Analysis and Design of tension members.( Considering strength only and concept of block shear failure.)                                                                                 |         |
|                                                              | 4th                                                   | 3.3 Analysis and Design of tension members.( Considering strength only and concept of block shear failure.)                                                                                 |         |
| 16th                                                         | 1st                                                   | 3.3 Analysis and Design of tension members.( Considering strength only and concept of block shear failure.)                                                                                 |         |
|                                                              | 2nd                                                   | 3.3 Analysis and Design of tension members.( Considering strength only and concept of block shear failure.)                                                                                 |         |
|                                                              | 3rd                                                   | <b>Chapter: 4 Design of Steel Compression members. 4.1 Common shapes of compression members.</b>                                                                                            | 10      |

|               |     |                                                                                                           |           |
|---------------|-----|-----------------------------------------------------------------------------------------------------------|-----------|
|               | 4th | 4.1 Common shapes of compression members.                                                                 |           |
| 17th          | 2nd | 4.2 Buckling class of cross sections, slenderness ratio                                                   |           |
| 18th          | 1st | 4.2 Buckling class of cross sections, slenderness ratio                                                   |           |
|               | 2nd | 4.3 Design compressive stress and strength of compression members.                                        |           |
|               | 3rd | 4.3 Design compressive stress and strength of compression members.                                        |           |
|               | 4th | 4.4 Analysis and Design of compression members (axial load only).                                         |           |
| Extra Classes |     | 4.4 Analysis and Design of compression members (axial load only).                                         |           |
|               |     | 4.4 Analysis and Design of compression members (axial load only).                                         |           |
|               |     | 4.4 Analysis and Design of compression members (axial load only).                                         |           |
|               |     | <b>Chapter: 5 Design of Steel beams, 5.1 Common cross sections and their classification.</b>              | <b>10</b> |
|               |     | 5.1 Common cross sections and their classification.                                                       |           |
|               |     | 5.1 Common cross sections and their classification.                                                       |           |
|               |     | 5.2 Deflection limits, web buckling and web crippling.                                                    |           |
|               |     | 5.2 Deflection limits, web buckling and web crippling.                                                    |           |
|               |     | 5.3 Design of laterally supported beams against bending and shear.                                        |           |
|               |     | 5.3 Design of laterally supported beams against bending and shear.                                        |           |
|               |     | 5.3 Design of laterally supported beams against bending and shear.                                        |           |
|               |     | 5.3 Design of laterally supported beams against bending and shear.                                        |           |
|               |     | 5.3 Design of laterally supported beams against bending and shear.                                        |           |
|               |     | <b>Chapter : 6 Design of Tubular Steel Structures, 6.1 Round Tubular Sections, Permissible Stresses</b>   | <b>6</b>  |
|               |     | 6.1 Round Tubular Sections, Permissible Stresses                                                          |           |
|               |     | 6.2 Tubular Compression & Tension Members                                                                 |           |
|               |     | 6.2 Tubular Compression & Tension Members                                                                 |           |
|               |     | 6.3 Joints in Tubular trusses                                                                             |           |
|               |     | 6.3 Joints in Tubular trusses                                                                             |           |
|               |     | <b>Chapter: 7 Design of Masonry Structures, 7.1 Design considerations for Masonry walls &amp; Columns</b> | <b>9</b>  |
|               |     | 7.1 Design considerations for Masonry walls & Columns                                                     |           |
|               |     | 7.1 Design considerations for Masonry walls & Columns                                                     |           |
|               |     | 7.2 Load Bearing & Non-Load Bearing walls                                                                 |           |
|               |     | 7.2 Load Bearing & Non-Load Bearing walls                                                                 |           |
|               |     | 7.3 Permissible stresses, Slenderness Ratio                                                               |           |
|               |     | 7.3 Permissible stresses, Slenderness Ratio                                                               |           |
|               |     | 7.4 Effective Length, Height & Thickness                                                                  |           |
|               |     | 7.4 Effective Length, Height & Thickness                                                                  |           |

Meghna Priyadarshani

SIGNATURE OF THE FACULTY