V11: DIPLOMA FOR CIVIL SUPERVISOR (DFCS)

DCV 101: Theory Course – I: BASIC CIVIL CONSTRUCTION

1. **Introduction to Building Construction.**
   Classification of Structure.
   Components of a building.

2. **Introduction to Engineering material.**
   Lime, Sand, Cement and Mortars etc.

3. **Brick Masonry.**
   Definition of brick, size of bricks, manufacturing of bricks, characteristics of good bricks.
   Terms used in Brick masonry, Principles of construction in Brick masonry, Bonds –
   English band, Flemish bond.
   Scaffolding, Types of Scaffolding.

4. **Stone Masonry**
   Terms used in Stone Masonry.
   Principles of Construction in stone masonry.
   Types of Stone Masonry.
   Comparison between Stone Masonry and Brick Masonry.

5. **Foundation**
   Definition of Foundation, Purpose of Foundation, Causes of Failure of Foundation.
   Formula for determining width and depth of foundation.
   Types of Foundation.
   Examination of ground, General Inspection of Soil and methods.

6. **Dampness and its prevention**
   Definition of Dampness, Causes of dampness.
   Prevention of Dampness, Material used for D.P.C.

7. **Floors.**
   Definition, Types of Floors, Construction of Different types of flooring, skirting & dado.

8. **Arches and Lintels**
   Definition of Arches, Terms used in Arches, Types of Arches.
   Definition of Lintels, Types of Lintels.

9. **Roofs**
   Definition, Types of Roofs – Pitched Roof & Flat Roofs.
   Terms used in Roof.
   Types of Pitched Roofs.
   Types of Roof covering.
   Flat Roof.

10. **Stairs**
    Definition, Terms used in Stair, Types of Stairs, Requirement of good stairs.

11. **R.C.C.**
    Definition, Material used in R.C.C.
    Grade of Concrete, Water cement Ratio.

Working of Concrete – slump Test.
Formwork.
Reinforcement Detailing in R.C.C. work.
Preparation of Concrete.
Mixing and Planning concrete.
Cutting and bending of bar, length of hooks and bends laps kept, minimum cover space etc.,
Bar bending schedule.

12. Structural Steel work

Types of Rivets, Advantages and Disadvantages of Riveting and Welding.
Rolled steel sections.
Steel column, girder and beams.
Connection between columns and beams.

13. Domestic Services

Plumbing, Definition of Plumbing, Tools in Plumbing.
Sanitary Fittings.
Terms used in House plumbing, water supply system, House drainage System.
Septic Tank, Soak Pit.
Sewers and drains.
Domestic water supply and installation of water supply system of building.

14. Field Activities

Agencies Associated in Building industry.
Plan Sanctioning Authorities.
Building rules and bye – laws, F.S.I., carpet area, Built – up area calculations.
Procedure of submitting plans for approval to plan sanctioning authority.
Planning of building.

15. Surveying and Leveling.

Brief idea of surveying and classification of Survey.
Chain Surveying, Instruments in chain Survey, field book.
Plane Table surveying, instrument used, Advantages and Disadvantages of plane tabling,
Methods of Plane Tabling.
Leveling, Terms used in leveling.
Different types of Levels, Dumpy level and leveling staff.
Contouring, Characteristics of contours, uses of contours.

16. Finishes

Surface Finishing, painting, varnishing, Polishing, Distempering, Cementing, Wall Papering, Plastering, Glazing work, white and color washing.

17. Units and Measurement.

Conversation of Units, Area & Volume (Rectangle, Square, Parallelogram, Rhombus,
Triangle, Circle)

DCV 102: Theory Course II: BUILDING CONSTRUCTION & MANAGEMENT

1. ESTIMATING & COSTING

A) Introduction.
B) Different methods of taking out quantities – center line, out – put & in-in problems

On square, Rectangular & Circular Sections.

C) Units of measurement & unit of payment of different items of works.

D) Calculation of quantities of materials for,

1) Plain cement concrete of different proportions.
2) Brick & Stone Masonry in cement & lime mortar.
3) Plastering & Painting with Cement Mortar in foundation & Super structure.
4) Woodwork for fully paneled doors & windows.
5) R.C.C. slab – Calculating Reinforcement & concrete.
6) Painting work for brick work & stone work.

E) Analysis of rates of the following items of work – includes labor, material rates etc.

1) Earthwork in Excavation & filling.
2) Cement concrete in foundation.
3) R.C.C. & R.B. in roof slabs.
4) I Class burnt brick masonry in C.M.
5) Course viable stone masonry in C.M.
6) Cement plaster.
7) Cement pointing – flash & deep pointing.
8) White washing on new surface
9) Painting on new woodwork.
10) Cement concrete floor.
11) Paneled & glazed door.

F) Preparation of detailed estimate; complete with detailed reports, specification etc.
Preparation of complete estimate of proposed bungalow.

G) To prepare abstract sheet from given drawing.

H) Types of Contracts, Tender Notice, Documents required in Tendering conditions
Of contracts, adding % as contractor's profit.

I) Take out quantity for septic tank.

2. ROADS: BRIDGES & RAILWAYS.

Different types of Roads, Railway Gauges.
Materials used & Construction of Roads.
Construction of cement concrete road & different Machinery used, Classification Of bridges.
Maintenance of different road, Types of R.C.C. bridges, Railway development in India.

3. WATER PROOFING WORKS:

Materials for water proofing, tools and Methods used.
Water proofing to W/C, bathrooms, Kitchen, Window sills & walls.
Water proofing while casting slab.
Water proofing to old slab & methods used.

4. ELECTRIFICATION WORKS:

Different types of wiring Systems & Materials.
Tools & accessories used in Electrification works.
Specification & Importance of Electrification works & symbol in Electrification.

5. BUILDING MAINTENANCE WORK:

Old Plaster Repairing.
Repair R.C.C. Slab, Leakage through parapet wall, basements, side walls.
Maintenance of different types of floorings.

6. CONSTRUCTION MANAGEMENT

A) Introduction:

Classification of construction into light, heavy & industrial. Importance of Construction industry, Agencies Associated with construction works.

B) Construction Planning:

Necessity & Importance, Planning at different stages, methods of planning, Scheduling, pretender & contract planning by contractor, types of schedules.

C) Construction Labour:

Introduction, Labour welfare, payment of wages act, minimum wages act. Workmen compensation act, contract labor act, labour insurance act.

D) Inspection & Quality Control:

Introduction, stages of Inspection, Major items of control, Technical services Required for inspection.

E) Safety in Civil Engineering:

Importance, terms used, Accident, Accident cost, safety – program.

7. ACCOUNT

A) Introduction:

Necessity of maintaining accounts, List of reference books, in accounts.

B) Stores & material Management:

Introduction, Material management, Stores, Necessity & Safely of stores, Monthly balance return of stock, surpluses & shortages of stock, Action for Rectification of stock register, Losses of stock, Recording the loss, estimates of Loss of stock & writing off.

C) Different types of contract:

% rate contract as per C.S.R. Labour rate (% above or below) for various items

For covered area construction through rate basis, item rate contract. Types of Contract.

D) Allotment of Works:

Concept of quotation, tender, contract agreement – brief reference, work order,

Rules & different types of forms, Deposit works.

DCV 103: PRACTICAL Course I: BUILDING DRAWING

Student is expected to complete following drawing sheets:

SR. NO.	TOPICS	MIN. NO. OF SHEETS
1	Lines, Lettering, Dimensioning	2
2	Plain scales and Isometric scales	1
3	Orthographic Projection	2
4	Isometric Projection	2
5	R.C.C. Drawing of : 1. Column Footing 2. One way and Two way slab	1

	3. Dog-legged Stair 4. Lintel and Chajja	
6	Different types of Doors and Windows	2
7	Different types of Stair and Staircases	1
8	Line Plan of Plumbing work and Sanitary & Water supply work	1
9	Symbols of Materials, Sanitary and Water supply Symbols	1
10	Electrical symbols and Wiring layouts	2
11	Structural Steel Work : 1. King Roof Truss 2. Queen Roof Truss 3. lean to Roof	3
12	Complete set of Drawings for : 1. Small & Medium Offices 2. Residential building 3. Residential and Double Storey building 4. Commercial Building & Complex	 2 4 4 2
	Total	30

DCV 104:PRACTICAL Course II: - COMPUTER AIDED DRAFTING (CAD)

1. MENUS, TOOLBARS AND TOOL PALETTES

Tools Palettes, Insert Blocks and Hatches Using Tool Palettes, Change Tool Palette Settings, Toolbars, The Menu Bar, Shortcut Menus.

2. DRAW GEOMETRIC OBJECTS

Linear Objects, Lines, Poly lines, Polygons, Multiple-Line Objects, Freehand Sketches,

Curved Objects, Arcs, Circles, Poly line Arcs, Donuts, Ellipses, Splines, Construction And Reference Geometry, Reference Points, Construction Lines (and Rays), Create and Combine Areas (Regions), Create 3D Objects, Overview of 3D Objects, Add Extruded Thickness to Objects, Create Wireframe Models, Create Surfaces, Create 3D Solids.

3. CHANGE EXISTING OBJECTS

Selects Objects, Individually, Multiple Objects, Prevent Objects from Being Selected, Mirror Objects, Change the Size and Shape of Objects, Create Fillets, Chamfers.

4. HATCHES, NOTES AND DIMENSIONS

Hatches, Fills and Wipeouts, Overview of Hatch Patterns and Fills, Define Hatch Boundaries, Overview of Hatch Boundaries, Choose Hatch Patterns and Solid Fills.

5. NOTES AND LABELS

Overview of Notes and Labels, Create Text, Create Single-Line Text,
Create Multiline Text, Import Text from External Files, Work with Text Styles, Assign Text Fonts, Set Text Height, Set Horizontal or Vertical Text Orientation, Change Text, Check Spelling.

6. DIMENSIONS AND TOLERANCES

Understand Basic Concepts of Dimensioning, Overview of Dimension, Parts of a Dimension, Associative Dimensions, Use Dimension Styles, Overview of Dimension Styles,

Set the Scale for Dimensions, Create Dimensions, Create Linear Dimensions, Create

Radial Dimensions, Create Angular Dimensions, Create Ordinate Dimensions, Modify Existing Dimensions, Apply a New Dimension Style to Existing Dimensions.

7. PLOT DRAWINGS

Set up a Layout, Overview of Layout Setup, Select a Paper Size for a Layout, Determine the Drawing Orientation of a Layout, Adjust the Plot Origin in a Layout, Set the Plot Area of a Layout, Set the Plot Scale for a Layout, Set the Line weight Scale for a Layout, Zoom and Pan in Nonrectangular Viewports, Plot Drawings, Overview of Plotting, Set up a Page for Plotting, Set Paper Size, Position the Drawing on the Paper, Control How Objects Are Plotted, Set Plot Scale, Preview a Plot.

8. STARTING AND SAVING A DRAWING

Find a drawing, Use a Setup Wizard, Use a Template File to Start a Drawing, Save a Drawing.

9. OPEN AN EXISTING DRAWING

Overview of Opening Drawings, Find a Drawing File, Specify Search Paths, File Names and File Locations, To work with Multiple Open Drawings, Open Part of a Large Drawing (Partial Load), Identifying Information to Drawings, To Recover a Damaged File.

10. SPECIFY UNITS, ANGLES AND SCALE

Set Units of Measurement, Set Angle, Draw to Scale, Organize Drawings and Apply Standards.

11. SPECIFY A 3D VIEW

View a Parallel Projection in 3D, Overview of Viewing Parallel Projections in 3D, Choose Preset 3D Views, Define a 3D View with Coordinate Values or Angles, Change to a View of
The XY Plane.

12. OVERVIEW OF LINE TYPES

Load Line types, Set the Current Line type, Change the Line type of an Objects, Control Line Weights, Overview of Line weights, Control the Display of Poly lines, Hatches, Gradient Fills.

Study Material List

Civil Draftsman by R S Malik and P. H. Mayo
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