

INSTITUTE	DIPLOMA STUDIES
PROGRAM	DIPLOMA ENGINEERING (CIVIL ENGINEERING)
SEMESTER	6
COURSE TITLE	STRUCTURE DRAWINGS AND DETAILING
COURSE CODE	09CI0611
COURSE CREDITS	2

Objective:

- 1 To learn bar bending schedule from drawing
- 2 To understand steel structure connections
- 3 To draw various components of RCC structure
- 4 To learn R.C.C. and steel structural drawings
- 5 To understand concept of detailing of RCC and steel sections.
- 6 To learn bar bending schedule from drawing.
- 7 To understand steel structure connections.
- 8 To draw various components of RCC structure.
- 9 To learn R.C.C. and steel structural drawings.

Course Outcomes: After completion of this course, student will be able to:

- 1 Draw the reinforcement details for various structural elements.
- 2 Draw bar bending schedule from drawing.
- 3 Draw various steel section connections.
- 4 Prepare the drawing and understand steel roof truss components.
- 5 Prepare, read and interpret R.C.C. and steel structural drawings.

Pre-requisite of course: Elementary Design of RCC and Steel Sections, Quantity Survey and Valuation

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	4	0	0	0	50	50

Contents : Unit	Topics	Contact Hours
1	Drawings and Detailing of RCC Elements General instructions and rules of drawing and detailing, Cross section and longitudinal sections of RC slabs, Cross section and longitudinal sections of Beams with bar bending schedule, Cross section and longitudinal sections of Columns and Footings , Cross section and longitudinal sections of stair case, Drawing of cantilever retaining wall showing details of all the members and reinforcement, Drawing components of Intze type water tank showing details of all the members and reinforcement, Provision of reinforcement detailing for earthquake resistant construction in masonry and RCC constructions as per Indian Standard, Draw the structural drawing sheets using CAD software	32
2	Drawings and Detailing of Steel Elements Drawings of different types of bolts and symbols, Drawings of various beam to beam, column to beam, column to foundation, beam to slab connections, Drawing of Roof Truss with details of joints, fixing details of purlins and roof sheets, Drawing of splicing of steel columns. Drawings of slab base, gusseted base and grillage base for single section steel columns, Draw the structural drawing sheets using CAD software	24
Total Hours		56

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Experiment-1 General instruction and rules , Drawing No. 1- lap, joint, development drawing: length, rings, hook etc, Drawing No. 2 - Preparation of structural plan for framing of a building showing position of columns and beams.	6
2	Experiment-2 Drawing No. 3: RC Slabs - One way slab, Two-way slab and Cantilever Slab	4
3	Experiment -3 Drawing No. 4: Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups), Drawing No. 5: Drafting of RCC chajja with lintel	6
4	Experiment -4 Drawing No. 6: Columns and Footings – Square, Rectangular and Circular Columns with lateral ties., Drawing No. 7: Isolated sloped footing, Combined footing, Drawing No. 8: Column and beam junction	6
5	Experiment -5 Drawing No. 9: Preparation of sectional elevation and plan of Dog-legged and open well stair case	2

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
6	Experiment -6 Drawing No. 10: Drawing of cantilever retaining wall showing details of all the members and reinforcement	2
7	Experiment -7 Drawing No. 11: Drawing of Intze type water tank showing details of all the members and reinforcement	2
8	Experiment -8 Drawing No. 12: Reinforcement detailing for earthquake resistant construction in masonry and RCC constructions as per IS 13920 and IS 4326	4
9	Experiment -9 Drawing No. 13: Drawings of different types of bolts and symbols	4
10	Experiment -10 Drawing No. 14: Various beam to beam, column to beam, column to foundation, beam to slab connections	4
11	Experiment -11 Drawing No. 15: Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.	4
12	Experiment -12 Drawing No. 16: Column and Column Bases - Drawing of splicing of steel columns. Drawings of slab base, gusseted base and grillage base for single section steel columns	4
13	Experiment -13 Prepare any two RCC drawing using CAD software	4
14	Experiment -14 Prepare any two Steel drawing using CAD software	4
Total Hours		56

Textbook :

- 1 RCC Design and Drawing, Singh, Birinder, Kaption Publishing House, New Delhi, 2018
- 2 RCC Design & Drawing, Neelam Sharma, S. K. Kataria & Sons, 2023

References:

- 1 Civil Engineering Drawing, Civil Engineering Drawing, Loyal JS, Satya Parkashan, New Delhi, 2019
- 2 Civil Engineering Drawing, Civil Engineering Drawing, Malik RS and Meo GA, Asian Publishing House, New Delhi, 2021
- 3 Steel Structures Design and Drawing, Steel Structures Design and Drawing, Harbhajan Singh, Abhishek Publication, 2011
- 4 Professional Practice and Valuation , Professional Practice and Valuation , A.S. Kotadiya, Mahajan Publication House, 2016

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking / Creative
10.00	40.00	30.00	20.00	0.00	0.00

Instructional Method:

- 1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
- 2 The evaluation will be done on the basis of performance of students in the class-room.
- 3 Practical examination will be conducted at the end of semester for evaluation of performance of students.
- 4 Students will use supplementary resources such as online videos, videos, e-courses, Virtual Laboratory.

Supplementary Resources:

- 1 <http://www.cdeep.iitk.ac.in/nptel>
- 2 <http://www.nptel.iitm.ac.in>