

Name of Faculty : VISITING FACULTY

Discipline : CIVIL ENGG.

Semester : 5th sem

Subject : STEEL STRUCTURES DESIGN

Lesson Plan Duration : 15 weeks(from July 2018 to Nov. 2018)

Work Load (lecture/practical)per week (in hours) : Lectures- 10, practical- 12

Week	Theory		Practical	
	Lecture Day	Topic(including assignment/test)	Practical Day	Practical Topic
1	1	Structural Steel and Sections: Properties of structural steel as per IS Code	1	Drawing No. 1: RC Slabs - One way slab, Two way slab and Cantilever Slab.
	2	Structural Steel and Sections: Properties of structural steel as per IS Code	2	
	3	Designation of structural steel sections as per IS handbook and IS:800 - 2007	3	
	4	Designation of structural steel sections as per IS handbook and IS:800 - 2007	4	Drawing No. 1: RC Slabs - One way slab, Two way slab and Cantilever Slab.
	5	Revision	5	
6				
2	6	Riveted Connections: Types of rivets, permissible stresses in rivets, types of riveted joints,	7	Drawing No.2 : Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)
	7	Riveted Connections: Types of rivets, permissible stresses in rivets, types of riveted joints,	8	
	8	specifications for riveted joints as per IS 800. Failure of a riveted joint.	9	
	9	Assumptions in the theory of riveted joints. Strength and efficiency of a riveted joint.	10	Drawing No.2 : Beams - Singly and doubly reinforced rectangular beams and Cantilever beam (All beams with vertical stirrups)
	10	Design of riveted joints for axially loaded members (No Staggered riveting).	11	
12				
3	11	Revision	13	

	12	Bolted and Welded connections: Types of bolts and bolted joints, specifications for bolted joints as per IS: 800 - 2007	14	Drawing No.3 : Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.
	13	Types of welds and welded joints, advantages and disadvantages of welded joints and bolted joints	15	
	14	design of fillet and butt weld. Plug and slot welds (Descriptive No numerical on plug and slot welds)	16	Drawing No.3 : Columns and Footings – Square, Rectangular and Circular Columns with lateral ties and their isolated sloped column footings.
	15	Revision	17	
			18	
4	16	Revision	19	Drawing No. 4 : Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.
	17	1st Sessional Test	20	
	18	Tension Members:- Analysis and design of single and double angle section tension members	21	
	19	Tension Members:- Analysis and design of single and double angle section tension members	22	Drawing No. 4 : Portal Frame – Three bay two storey RC portal frame with blow up of column beam junctions.
	20	Rivetted and welded connections with gusset plate as per IS:800	23	
24				
5	21	Revision	25	Drawing No.5: Dog legged stairs for single storey building
	22	Compression Members:-Analysis and design of single and double angle sections compression members (struts)	26	
	23	Compression Members:-Analysis and design of single and double angle sections compression members (struts)	27	
	24	their welded connections with gusset plate as per IS:800	28	Drawing No.5: Dog legged stairs for single storey building
	25	Revision	29	

			30	
6	26	Roof Trusses:- Form of trusses, pitch of roof truss,	31	Drawing No.6 : Draw atleast one sheet using CAD software
	27	spacing of trusses,	32	
	28	spacing of purlins	33	
	29	Connection between purlin and roof covering.	34	Drawing No.6 : Draw atleast one sheet using CAD software
	30	Connection between purlin and principal rafter (no design, only concept)	35	
			36	
7	31	Columns:-Concept of buckling of columns, effective length and slenderness ratio,	37	Drawing No. 1: Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.
	32	permissible stresses in compression as per IS:800 for different end conditions.	38	
	33	Analysis and Design of axially loaded single section steel column	39	
	34	Types of column bases (Descriptive only)	40	Drawing No. 1: Roof Truss – Drawing of Fink Roof Truss with details of joints, fixing details of purlins and roof sheets.
	35	Beam and column, frame and seated connections (descriptive only, no design)	41	
			42	
8	36	Columns:-Concept of buckling of columns, effective length and slenderness ratio,	43	Drawing No.2 : Column and Column Bases - Drawing of splicing of steel columns. Drawings of slab base, gusseted base and grillage base for single section steel columns.
	37	permissible stresses in compression as per IS:800 for different end conditions.	44	
	38	Analysis and Design of axially loaded single section steel column	45	
	39	Types of column bases (Descriptive only)	46	Drawing No. 2 : Column and Column

	40	Beam and column, frame and seated connections (descriptive only, no design)	47	Drawing No.2 : Column and Column Bases - Drawing of splicing of steel columns. Drawings of slab base, gusseted base and grillage base for single section steel columns.
			48	
9	41	Revision	49	Drawing No.3 : Column Beam Connections (a) Sealed and Framed Beam to Beam Connections
	42	Revision	50	
	43	Revision	51	
	44	Revision	52	Drawing No.3 : Column Beam Connections (a) Sealed and Framed Beam to Beam Connections
	45	2nd sessional test	53	
54				
10	46	Beams:- Analysis and design of single section simply supported laterally restrained steel beams.	55	(b) Sealed and Framed beam o Column Connections
	47	Beams:- Analysis and design of single section simply supported laterally restrained steel beams.	56	
	48	Introduction to plate girder and functions of various elements of a plate girder	57	
	49	Introduction to plate girder and functions of various elements of a plate girder	58	(b) Sealed and Framed beam o Column Connections
	50	Revision	59	
60				
11	51	Beams:- Analysis and design of single section simply supported laterally restrained steel	61	Drawing No. 4 : Plate Girder Plan and Elevation of Plate Girder with details at supports and connection of stiffness, flange angles and cover plate with web
	52	Beams:- Analysis and design of single section simply supported laterally restrained steel	62	

	53	Introduction to plate girder and functions of various elements of a plate girder	63	highlighting curtailment of plates.
	54	Introduction to plate girder and functions of various elements of a plate girder	64	Drawing No. 4 : Plate Girder Plan and Elevation of Plate Girder with details at supports and connection of stiffness, flange angles and cover plate with web highlighting curtailment of plates.
	55	Revision	65	
			66	
12	56	Fabrication and Erection of Steel Structures like trusses, columns and girders	67	Drawing No. 5 : Draw atleast one sheet using CAD software
	57	Fabrication and Erection of Steel Structures like trusses, columns and girders	68	
	58	Fabrication and Erection of Steel Structures like trusses, columns and girders	69	
	59	Fabrication and Erection of Steel Structures like trusses, columns and girders	70	Drawing No. 5 : Draw atleast one sheet using CAD software
	60	Revision	71	
72				
13	61	Masonry structures – Design of brick column and wall foundations	73	Sheet checking and viva
	62	Masonry structures – Design of brick column and wall foundations	74	Sheet checking and viva
	63	Masonry structures – Design of brick column and wall foundations	75	Sheet checking and viva
	64	Masonry structures – Design of brick column and wall foundations	76	Sheet checking and viva
	65	Revision	77	Sheet checking and viva
			78	Sheet checking and viva
14	66	Revision	79	Sheet checking and viva
	67	Revision	80	Sheet checking and viva

	68	Revision	81	Sheet checking and viva
	69	Revision	82	Sheet checking and viva
	70	Revision	83	Sheet checking and viva
			84	Sheet checking and viva
15	71	Viva	85	Sheet checking and viva
	72	Viva	86	Sheet checking and viva
	73	Viva	87	Sheet checking and viva
	74	Viva	88	Sheet checking and viva
	75	3rd sessional test	89	Sheet checking and viva
90			Sheet checking and viva	