

COLLEGE OF TECHNOLOGY AND ENGINEERING

DEPARTMENT OF CIVIL ENGINEERING 3 YEAR BE I SEMESTER SESSION 2015-16

1. Course Code : **CE 316**

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- 2. Course Title
- : DESIGN OF STEEL STRUCTURES-I
- 3. Credit : 4
- : 4(3+1)
- 4. Theory Lecture Outlines

1.	Introduction: Types of steels as a structural material
2.	various grades of structural steel, properties and their permissible stresses
3.	Various rolled steel sections and their properties
4.	Introduction to various codes related to steel design of structures (IS 800, 875 etc.)
5.	Introduction to various codes related to steel design of structures (IS 800, 875
	etc.)
6.	Introduction to various codes related to steel design of structures (IS 800, 875
	etc.)
7.	Structural Fasteners: Riveted, bolted and welded connections
8.	Structural Fasteners: Riveted, bolted and welded connections
9.	Strength, efficiency and design of joints
10.	Strength, efficiency and design of joints
11.	Introduction to high strength friction grip bolts
12.	Introduction to high strength friction grip bolts
13.	Design of Axially Loaded Members: Tension and compression members
14.	Design of Axially Loaded Members: Tension and compression members
15.	Design of Axially Loaded Members: Tension and compression members
16.	Design axially loaded and eccentrically loaded columns.
17.	Design axially loaded and eccentrically loaded columns.
18.	Design axially loaded and eccentrically loaded columns.
19.	Design of lacings and battens for built-up columns.
20.	Design of lacings and battens for built-up columns.
21.	Design of lacings and battens for built-up columns.
22.	Column Bases: Slab base, Gusseted base.
23.	Column Bases: Slab base, Gusseted base.
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24.	Column Bases: Slab base, Gusseted base.
25.	Plastic Design: Fundamentals of plastic theory for steel structures
26.	Plastic Design: Fundamentals of plastic theory for steel structures
27.	shape factor, plastic analysis
28.	shape factor, plastic analysis
29.	Design of rectangular & I sections for Continuous beam
30.	Design of rectangular & I sections for Continuous beam
31.	Design of rectangular & I sections for Continuous beam
32.	Design of Simple and Built-up Beams: Laterally restrained and unrestrained
	(symmetrical section only). Curtailment of flange plates.
33.	Design of Simple and Built-up Beams: Laterally restrained and unrestrained
	(symmetrical section only). Curtailment of flange plates.
34.	Design of Simple and Built-up Beams: Laterally restrained and unrestrained
	(symmetrical section only). Curtailment of flange plates.
35.	Design of Simple and Built-up Beams: Laterally restrained and unrestrained
	(symmetrical section only). Curtailment of flange plates.
36.	Gantry Girder: Design of gantry girder
37.	Gantry Girder: Design of gantry girder
38.	Gantry Girder: Design of gantry girder
39.	Gantry Girder: Design of gantry girder
40.	Numericals
41.	Numericals
42.	Numericals
43.	Revision
44.	Revision
45.	Revision

Suggested Books & References

- 1. Arya & Ajmani, 'Design of Steel Structures'.
- 2. Duggal,S.K. 'Design of Steel Structures'.
- 3. Punmia B.C., 'Design of Steel Structures'.
- 4. Steel Hand Book
- 5. Relevant IS Codes.