

Course Code	Course Name	Course Type	Cd	L	T	P	Marks		
							Sessional	Final Exam	Total
CE-602	Design of Steel Structures	PCC	4	3	1	0	50	100	150

**Course Outcomes:**

At the end of the course the students will be able to:	
CO1	Explain the concept of plastic analysis of steel structures.
CO2	Describe the steel connections and tension members.
CO3	Analyze steel compression members.
CO4	Design flexural members.
CO5	Design plate girder and column bases.

**Detailed Syllabus****Section-A**

**Unit 1:** Plastic analysis of steel structures - fundamentals, static and mechanism method of analysis, shape factor, classification of cross sections, As per IS 800-2007 plastic, compact, semi compact, slender sections, their characteristics including moment- rotation. **(8 Hrs)**

**Unit 2:** Types of bolts, load transfer mechanism, prying action, design of bolted and welded connections under axial and eccentric loadings. Tension Members: Design strength in gross section yielding, net section rupture and block shear, design of axially loaded tension members. **(12 Hrs)**

**Unit 3:** Types of buckling: Column buckling curves, imperfection factor, buckling curves for different cross sections, design of compression member, axially loaded compression members including angle section design, single and in pair, built up columns, design of lacings and battens. **(10 Hrs)**

**Section-B**

**Unit 4:** Design of beams: Simple and compound sections, main and subsidiary beams and their connections, laterally supported and unsupported beam design, web buckling, web crippling, lateral, torsional buckling. **(10 Hrs)**

**Unit 5:** Design of column bases - Slab base and gusseted base for axial compressive load, design of plate girder. **(10 Hrs)**

**Text Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Limit state Design of steel structures	S. K Duggal	Mc Graw Hill Publication	2 <sup>nd</sup> (2017)
2	Design Of Steel Structures	KS Sai Ram	Pearson Education India	2 <sup>nd</sup> (2015)

**Reference Books**

S. No.	Name of the Books	Author	Publisher	Edition (Pub. Yr.)
1	Design of steel structures	N. Subramanian	Oxford University press	2 <sup>nd</sup> (2018)
2	Design of steel structures	S. bhavikatti	I.K. international Pvt. Ltd	5 <sup>th</sup> (2017)
3	Design and analysis of connections in steel structures	Affredo Bracchin	Wiley publication	7 <sup>th</sup> (2018)