

| Course Type | Course Code | Name of the course | L | T | P | Credit |
|---|---|----------------------------|----------|---|---|--------|
| DC | CEC305 | Design of Steel Structures | 3 | 0 | 0 | 9 |
| Course Objective | | | | | | |
| The primary focus of this course is to understand the design philosophy of steel structures along with design methodology of different structural components based on Indian Standard. | | | | | | |
| Learning Outcomes | | | | | | |
| After studying this course, students should be able to: <ul style="list-style-type: none">Understand the design philosophy of steel structures.Design different structural elements under various loading conditions based on Indian Standard. | | | | | | |
| Unit No. | Topics to be Covered | | Lectures | Learning Outcome | | |
| 1 | Types of structural steel, Loading as per IS: 875, load Combinations, Design Load, Wind Load, I.S. rolled sections, Design philosophy, elastic method, limit state design. | | 5 | To get exposed to different types of structural steel along with the concept of different design philosophy and loading conditions. | | |
| 2 | Riveted, bolted and welded connections, failure of joints, efficiency of joints, design of bolted, welded joints for axial and shear force, HS Friction bolts. | | 10 | Able to analyse and design of different types of connections | | |
| 3 | Steel members subject to axial tension, L.S. Design of tension members, Design rules, Design of compression members for axial force, effective lengths, Design rules, Built up columns, Design of lacing and batten plates, Column bases, slab base, gusseted base and grillage footings. | | 14 | Concept to know the analyse and design of tension and compression members | | |
| 4 | Stability of flange and web, stability consideration, uniaxial loading, biaxial loading, Design of rolled steel sections, stiffeners, Simple Beam end connections, Beam-Column connections. | | 8 | Concept to know the analyse and design of flexural members | | |
| 5 | Design of trusses and purlins. | | 5 | Able to analyse and design of industrial truss structures | | |

Recommended Text Books:

1. I. C. Syal and Satinder Singh, Limit State Design of Steel Structures, Standard Publishers Distributors.

Recommended References:

1. S. S. Bhavikatti, Design of Steel Structures, I.K. International Publishing House Pvt. Ltd.
2. S. K. Duggal, Design of Steel Structures, McGraw Hill.
3. N. Subramanian, Design of Steel Structures, Oxford University Press.