

SEMESTER V

THEORY

AS513	Design of Steel Structures	HRS 3-0-0	CR-3
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Objective

To introduce the concepts of designing with steel structures and its components. To enable students to analyse and design simple steel structural components; To enable the students to select suitable steel roof truss for different spans of industrial buildings and large span structures.

Module 1

INTRODUCTION

Introduction to Steel structures: Steel structural shapes, Introduction to IS 800; Rivets, welded connection, Steel structural members, tension, compression and bending Members. Design of riveted and welded connections like beam end connections (Limit Stress method).

Module 2

STRUCTURAL ELEMENTS

Design of structural elements; Truss members under tension, a laterally restrained beam using rolled steel sections. Design of structural element under compression in a truss, a column using rolled steel sections, effective length bulking load. (Practical case study of a steel section)

Module 3

FOUNDATION

Concept of type of foundation; Design of slab base and gusseted base; Introduction of plastic design.

Module 4

DESIGN OF A UNIT

Visit to a construction site to study steel fabrication work. Design of shed in steel structure

Module 5

Innovative designs in steel for space and box frames. (To be decided by the subject teacher)

Reference

1. Ramachandra .S, Design of steel structures Vol. I, Standard publication, New Delhi, 1992.
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3. Arya .A.S, Ajamani .J.L, Design of Steel Structures, Nem Chand and Bros, Roorkee, 1999.
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5. Duggal, Design of Steel structures, Tata McGraw Hill Company, New Delhi, 2000
6. Lin .T.R, and Scalzi .J.B, Design of Steel structures – Bressler Weley Eastern Pvt. Ltd., New Delhi, 1960.
7. Dayaratnam .P, Design of Steel Structures, Wheelers Publishing Company Co. Ltd, 1990
8. Handbook of Typified Designs for Structures with steel roof trusses, SP 38 (S&T) – 1987, BIS, New Delhi, 1987.
9. Code of practice for Earthquake Resistant Design and Construction of Buildings IS4326-1976, BIS, New Delhi.