

DESIGN OF STEEL STRUCTURES – II **(using Limit State Method except Chapter 5)**

Lectures / Tutorials : 4 / 1 Periods/Week

Sessional marks : 40

Semester End Exam. : 3 Hours

Semester End Exam. Marks :

60

Credits : 4

Course objectives:

- To design welded plate girder and gantry girder
- To design welded and bolted connections
- To design roof trusses
- To design light gauge sections
- To design structural steel and concrete composite beams

Course outcomes:

- Learn the design of welded plate girder and gantry girder
- Able to design welded and bolted connections
- Able to design roof trusses
- Learn the design of light gauge sections
- Able to design concrete composite beams

UNIT - I

Gantry girder

Introduction; Loads on gantry girder; Web buckling and Crippling; Deflection, Check ; Design of gantry girder

Welded Plate girder

Introduction ; Behaviour of transversely stiffened plate girder panels in shear ; Design methods for transversely stiffened web panels ; Design of end panels ; Other design specifications ; Design of stiffeners ; Design of welded plate girder

UNIT - II

Welded connections

Introduction; Bracket connections; Simple beam end connections; Moment resistant beam end connection.

Bolted connections

Introduction; Bracket connections; Simple beam end connections; Moment resistant beam end connection; Splicing of beams /girders

UNIT - III

Light-gauge steel sections

Introduction; Types of sections; Design of light gauge sections; Design of axially loaded columns; Design of beams which do not buckle laterally.

Composite Construction

Introduction; Composite beam ; Method of construction ; Limit states of collapse; Limit states of serviceability – Deflection

UNIT - IV

Roof Trusses

Components of a trussed roof; Types of trusses; Dead, Live and wind loads on trussed roof; Design of purlins ; Design of members of a roof truss ; Design of connections ; Design of end bearings

NOTE

Two questions of 12 marks each will be given from each unit out of which one is to be answered. Twelve questions of one mark each will be given from entire syllabus which is a compulsory question.

TEXT BOOK

Design of steel structures by K.S.Sai Ram, Pearson Education, 2010

REFERENCE BOOKS

1. Steel Structures - Design and Practice by N. Subramanian, Oxford University press,2010.
2. Limit state design of steel structures by M.R.Shiyekar , PHI Learning,2010.

WEBREFERNCES:

www.iitm.ac.in