

B.E. Semester: VII
Civil Engineering
Subject Name: DESIGN OF STEEL STRUCTURE (CV701)

A. Course Objective:

- To provide a coherent development to the students for the courses in sector of Designing of the Steel Structures.
- To present the foundations of many basic Engineering concepts related Design of Steel Structures.
- To give an experience in the implementation of engineering concepts which are applied in field of Steel Structures.
- To involve the application of scientific and technological principles of planning, analysis, design of buildings.

B. Teaching /Examination Scheme

Teaching scheme				Total Credit	Evaluation Scheme					Total
L	T	P	Total		Theory		Mid Sem Exam	CIA	Pract/ Tut.	
Hrs	Hrs	Hrs	Hrs		Hrs	Marks	Marks	Marks	Marks	
03	02	00	05	05	03	70	30	20	30	150

C. Detailed Syllabus:

- Limit State design of Steel elements**
- UNIT-I Axial force design**
Tension member, compression member
- UNIT-II Flexural design for beams**
Restrained, unrestrained, Combined axial and flexural design: Columns
- UNIT-III Design of Footing**
Slab based, gusseted base foundation
- UNIT IV Torsion design**
Beams, columns Combined axial, flexural and torsion: columns
- UNIT V Connections**
Bolted – bearing type, HSFG for seismic purpose, Welded: types of electrodes. Connection design for tension, compression, flexural, flexural + shear.
- UNIT VI Plastic Design**
Design of continuous beams and portal frame using plastic design approach

D. Lesson Planning

Unit no	Title of the Unit	Minimum Hours	Weightage (%)
I	Axial force design	8	17
II	Flexural design for beams	8	17
III	Design of Footing	7	16
IV	Torsion design	6	15
V	Connections	10	22
VI	Plastic Design	6	13
TOTAL		45	100

E. List of Tutorial

Sr.no	Minimum five examples of following topics
1	Axial force design
2	Flexural design for beams
3	Design of Footing
4	Torsion design
5	Connections
6	Plastic Design

F. Instructional method and pedagogy (Continuous Internal Assessment Scheme) (CIA)

- At the start of course, the course delivery pattern, prerequisite of the subject will be discussed.
- Lecture may be conducted with the aid of multi-media projector, black board, OHP etc.
- Attendance is compulsory in lectures and practical which carries marks.
- At regular intervals assignments will be given. Students should submit all assignments during given period.
- Classroom participation and involvement in solving the problems in Tutorial rooms carries marks
- Internal exam of 30 marks will be conducted as a part of mid semester evaluation.

- Experiments shall be performed in the field related to course contents.
- The course includes a practical, where students have an opportunity to build an appreciation for the concept being taught in lectures.

G. Students Learning Outcomes:

- The students will gain an experience in the implementation of Design of Steel Structures on engineering concepts which are applied in field Structural Engineering.
- The students will get a diverse knowledge of Design of Steel engineering practices applied to real life problems
- The students will learn to understand the theoretical and practical aspects of Design of Steel Structure along with the planning and design aspects.

H. Recommended Study Materials

Reference Books and IS Codes:

- 1) N.Subramanian; Steel Structures, Oxford Publication
- 2) K. S. Sai Ram; Design of Steel Structures, Pearson
- 3) Arya & Ajmani; Design of Steel Structures
- 4) Dayaratnam ; Design of Steel Structures
- 5) B.C.Punamia; Steel Structures, Laxmi Publication