

**Government Polytechnic Nawada**  
**Department of Civil Engineering**  
Lesson Plan

Name :- Abhishek Kumar

Designation:- Lecturer

Subject Name :- Design of Steel Structures

Subject Code:- 1615502

Semester:- 5th

S. No.	Unit	Lecture No.	Topics
1	1- Introduction	1	Types of sections used, Grades of steel and strength characteristics; advantages and disadvantages of steel as construction material
2		2	Use of steel table and relevant I. S . code; Types of loads on steel structure and its I.S code specification
3	2- Connections	1	Riveted connections, Types of rivets and their use, Types of riveted joint and its failure
4		2	Strength of riveted joint and efficiency of a riveted joint, Assumptions in theory of riveted joint
5		3	Design of riveted joint for axially loaded member
6		4	welded connection, Introduction, Permissible stress in weld, strength of weld,
7		5	advantages and disadvantages of welded joint. Types of weld and their symbols
8		6	Design of fillet weld and butt weld subjected to axial load
9	3- Design of Tension Member	1	Types of section used, Permissible stresses in axial Tension
10		2	Gross and Net Cross- Sectional area of tension member
11		3	Analysis and Design of tension member with welded and riveted connection
12		4	Introduction to Lug Angle and Tension splice.
13	4- Design of Compression Member	1	Angle struts Types of Sections used, Effective length, Radius of gyration
14		2	Slenderness ratio and its limit, Permissible stresses compressive, Introduction to lacing and battening
15		3	Analysis and Design of axially loaded angle struts with welded connection
16		4	Analysis and Design of axially loaded angle struts with riveted connection
17		5	Stanchion and Columns types of sections used; simple and built up sections, effective length
18		6	Analysis and design of axially loaded column
19	5- Beams	1	Different steel sections used, simple and built-up sections, permissible bending stresses
20		2	Design of simple beams, check for shear only
21		3	Design of built-up beams, check for shear only

22		4	Introduction to plate girder, various components and their functions	
23	7- Column Bases	1	Types of column bases	
24		2	Design of slab base & concrete block	
25		3	Design of slab base & concrete block	
26		4	Introduction to gusseted base	
27		1	Types of steel roof truss & its selection criteria	
28	5- Steel Roof Truss	2	Calculation of panel point load for Dead load, Live Load and Wind Load	
29		3	Calculation of panel point load for Dead load, Live Load and Wind Load	
30		4	Analysis and Design of steel roof truss	
31		5	Analysis and Design of steel roof truss	
32		6	6	Design of angle purlin as per IS arrangement of members at supports

**Note :- Class duration may be increases**

**Reference Books:-**

1. Duggal S.K., "Design of steel structure", Tata macgraw hill publication company ltd. New Delhi
2. Nege L.S., "Design of steel structure", Tata macgraw hill publication company ltd. New Delhi
3. Bhavikatti S.S., "Design of Steel Structures", I.K. International Publishing House