

LESSON PLAN OF 5TH SEMESTER CIVIL ENGINEERING(2023-24)

Discipline :- CIVIL	Semester:-5 TH	Name of the Teaching Faculty SWASTIK PRADHAN
Subject:- STRUCTURAL DESIGN- II	No of Days/per Week Class Allotted :-04	Semester From:- <u>1st August 2023</u> To:- <u>30th November, 2023</u> No of Weeks:- 18
Week	Class Day	Theory/ Practical Topics
1 st	1 st	1.0 Introduction: Common steel structures, Advantages & disadvantages of steel structures. Types of steel, properties of structural steel.
	2 nd	Rolled steel sections, special considerations in steel design. Loads and load combinations.
	3 rd	Structural analysis and design philosophy. Brief review of Principles of Limit State design
	4 th	2.0 Structural Steel Fasteners and Connections Classification of bolts, advantages and disadvantages of bolted connections.
2 nd	1 st	Different terminology, spacing and edge distance of bolt holes. Types of bolted connections.
	2 nd	Types of action of fasteners, assumptions and principles of design. Strength of plates in a joint, strength of bearing type bolts (shear capacity & bearing capacity)
	3 rd	reduction factors, and shear capacity of HSFG bolts. Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces)
	4 th	Efficiency of a joint .Welded Connections: Advantages and Disadvantages of welded connection
3 rd	1 st	Types of welded joints and specifications for welding.
	2 nd	Design stresses in welds
	3 rd	Strength of welded joints. Reduction of design stresses for long joints
	4 th	03.Design of Steel tension Members
4 th	1 st	Common shapes of tension members.
	2 nd	Design strength of tension members

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	3 rd	yielding of gross cross section, rupture of critical section
	4 th	the concept of block shear
5 th	1 st	Maximum values of effective slenderness ratio
	2 nd	Analysis of tension members
	3 rd	Design of tension members
	4 th	04.Design of Steel Compression members
6 th	1 st	Common shapes of compression members
	2 nd	Bulking class of cross sections. slenderness ratio
	3 rd	
	4 th	Design compressive stress
7 th	1 st	strength of compression members.
	2 nd	Analysis of compression members
	3 rd	Design of compression members (axial load only). Analysis
	4 th	5.0 Steel Column bases and foundations
8 th	1 st	Types of column bases ,their suitability
	2 nd	Design of slab base Design of slab base (subjected to axial loading) with concrete footing
	3 rd	Design of gusseted base
	4 th	Design of gusseted base subjected to axial loading Design of gusseted base with concrete footing
9 th	1 st	6.0 Design of Steel beams Common cross sections
	2 nd	their classification
	3 rd	Plastic moment capacity of sections, moment capacity and shear resistance.
	4 th	Deflection limits, web buckling and web crippling.
10 th	1 st	Design of laterally supported beams against bending and shear.
	2 nd	
	3 rd	Types of built up sections design of simple built up sections using flange plates with I-sections or web plates.
	4 th	.7.0 Design of Tubular Steel structures
11 th	1 st	Tube columns and compression members, crinkling Round tubular sections, permissible stresses

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12 th	2 nd	Tube tension members and tubular roof trusses.
	3 rd	Joints in tubular trusses Design of tubular beams and purlins
	4 th	8.0 Design of Timber Structures Types of timber
	1 st	Types of grading of timber
13 th	2 nd	Types of defects,
	3 rd	Types of permissible stresses
	4 th	. Design of axially loaded timber columns solid, box
	1 st	built up section except spaced columns
14 th	2 nd	Design of simple timber structural elements in flexure Solid sections & flitched beams
	3 rd	form factor and moment of resistance of built-up sections
	4 th	check for shear, bearing and deflection
	1 st	9.0 Design of Masonry Structures Design consideration for masonry walls
15 th	2 nd	, Load bearing walls -Permissible stresses Slenderness ratio, Effective length, Effective height
	3 rd	Effective thickness, Eccentricity of loads, Grade of mortar
	4 th	Non-Load bearing walls – Panel walls, Curtain walls, Partition walls.
	1 st	. Design consideration for masonry columns, piers and buttresses
16 th	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
	1 st	PREVIOUS YEAR QUESTIONS PRACTICE
17 th	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
	1 st	PREVIOUS YEAR QUESTIONS PRACTICE
18 th	2 nd	PREVIOUS YEAR QUESTIONS PRACTICE
	1 st	PREVIOUS YEAR QUESTIONS PRACTICE

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	3 rd	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE
	4 th	PREVIOUS YEAR QUESTIONS PRACTICE

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