



LESSON PLAN: Th2. STRUCTURAL DESIGN-II FOR THE SESSION 2025-26(WINTER-2025) BATCH-2025-26 GOVT.
POLYTECHNIC, KANDHAMAL

Discipline: Civil	Semester: 5th	Name of the Teaching Faculty :Swastik Pradhan, Lecture stage II in Civil Engg.
Subject: Th2. STRUCTURAL DESIGN-II	No. of days/ per week class allotted: 4	Semester From Date : 14/07/2025 to Date: 15/11/2025 No. of Weeks: 15
Week	Class Day	Theory/ Practical Topics
		1 Introduction: 1st 1st Common steel structures, Advantages & disadvantages of steel structures 2nd Types of steel, properties of structural steel 3rd Rolled steel sections, special considerations in steel design 4th Loads and load combinations. Structural analysis and design philosophy.
2nd	1st	Brief review of Principles of Limit State design Structural Steel Fasteners and Connections.
	2nd	Bolted Connections Classification of bolts, advantages and disadvantages of bolted connections
	3rd	Different terminology, spacing and edge distance of bolt holes
	4th	Types of bolted connections. Types of action of fasteners, assumptions and principles of design
3rd	1st	Strength of plates in a joint, strength of bearing type bolts (shear capacity & bearing capacity), reduction factors, and shear capacity of HSFG bolts
	2nd	Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces)
	3rd	Efficiency of a joint. Welded Connections:
4th	4th	Advantages and Disadvantages of welded connection
4th	1st	Types of welded joints and specifications for welding
	2nd	Design stresses in welds
		Design of Steel tension Members
	3rd	Common shapes of tension members
	4th	MONTHLY TEST
5th	1st	Maximum values of effective slenderness ratio.
	2nd	Maximum values of effective slenderness ratio.
	3rd	Maximum values of effective slenderness ratio.
	4th	Maximum values of effective slenderness ratio.
6th	1st	Analysis and Design of tension members. (Considering strength only and concept of block shear failure.)
	2nd	Analysis and Design of tension members. (Considering strength only and concept of block shear failure.)
	3rd	Analysis and Design of tension members. (Considering strength only and concept of block shear failure.)
	4th	Analysis and Design of tension members. (Considering strength only and concept of block shear failure.)
		Design of Steel Compression members
7th	1st	Common shapes of compression members.
	2nd	Common shapes of compression members.
	3rd	Buckling class of cross sections, slenderness ratio
	4th	Buckling class of cross sections, slenderness ratio
8th	1st	Design compressive stress and strength of compression members.
	2nd	Design compressive stress and strength of compression members.
	3rd	Design compressive stress and strength of compression members.
	4th	Analysis and Design of compression members (axial load only).
9th	1st	MONTHLY TEST

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	2nd	Analysis and Design of compression members (axial load only).
	3rd	Design of Steel beams:
	4th	Common cross sections and their classification
		Common cross sections and their classification
10th	1st	Deflection limits, web buckling and web crippling.
	2nd	Deflection limits, web buckling and web crippling.
	3rd	Deflection limits, web buckling and web crippling.
	4th	Deflection limits, web buckling and web crippling.
11th	1st	Design of laterally supported beams against bending and shear.
	2nd	Design of laterally supported beams against bending and shear.
	3rd	Design of laterally supported beams against bending and shear.
	4th	Design of laterally supported beams against bending and shear.
12th	1st	Design of Tubular Steel Structures:
	2nd	Round Tubular Sections, Permissible Stresses
	3rd	MONTHLY TEST
	4th	Tubular Compression & Tension Members
13th	1st	Joints in Tubular trusses
	2nd	Joints in Tubular trusses
		Coffer dams
	3rd	Design of Masonry Structures:
	4th	Design considerations for Masonry walls & Columns
14th	1st	Design considerations for Masonry walls & Columns
	2nd	Design considerations for Masonry walls & Columns
	3rd	Permissible stresses, Slenderness Ratio,
	4th	Permissible stresses, Slenderness Ratio,
15th	1st	Permissible stresses, Slenderness Ratio,
	2nd	Effective Length, Height & Thickness
	3rd	Effective Length, Height & Thickness
	4th	Effective Length, Height & Thickness

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