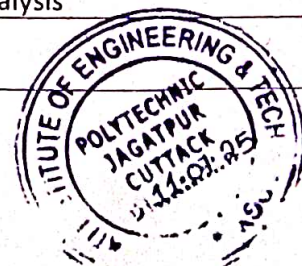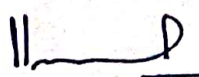# LESSON PLAN OF 5TH SEMESTER(2025-26) CIVIL ENGINEERING

Discipline:- CIVIL ENGG.	Semester:-5TH	Name of the Teaching Faculty BIBHU RANJAN SAMAL (SR.LECTURER)	
Subject:- STRUCTURAL DESIGN– II(Th.2)	No of Days/per Week Class Allotted :-04	Semester From:- 14/07/2025 To:- 15/11/2025 No of Weeks:- 18	
Week	Class Day	Theory/ Practical Topics	

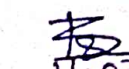| Week	Class Day	Theory/ Practical Topics
1st	1st	**1.0 Introduction:** Common steel structures, Advantages & disadvantages of steel structures. Types of steel, properties of structural steel.
	2nd	Rolled steel sections, special considerations in steel design. Loads and load combinations.
	3rd	Structural analysis and design philosophy. Brief review of Principles of Limit State design
	4th	**2.0 Structural Steel Fasteners and Connections** Classification of bolts, advantages and disadvantages of bolted connections.
2nd	1st	Different terminology, spacing and edge distance of bolt holes. Types of bolted connections.
	2nd	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)
	3rd	Reduction factors, and shear capacity of HSFG bolts.
	4th	Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces)
3rd	1st	Efficiency of a joint .Welded Connections:
	2nd	Advantages and Disadvantages of welded connection
	3rd	Types of welded joints
	4th	specifications for welding.
4th	1st	Design stresses in welds
	2nd	Strength of welded joints.
	3rd	Reduction of design stresses for long joints
	4th	**3.0 Design of Steel tension Members**
5th	1st	Common shapes of tension members.
	2nd	Design strength of tension members
	3rd	yielding of gross cross section, rupture of critical section
	4th	the concept of block shear
6th	1st	Maximum values of effective slenderness ratio
	2nd	Analysis of tension members
	3rd	Design of tension members
	4th	**4.0 Design of Steel Compression members**
7th	1st	Common shapes of compression members
	2nd	Bulking class of cross sections.
	3rd	slenderness ratio
	4th	Design compressive stress
8th	1st	strength of compression members.
	2nd	Analysis of compression members
	3rd	Design of compression members (axial load only). Analysis
	4th	**5.0 Design of Steel beams** Common cross sections

9th	1st	their classification	
	2nd	Plastic moment capacity of sections,	
	3rd	moment capacity and shear resistance.	
	4th	Deflection limits, web buckling and web crippling.	
10th	1st	Design of laterally supported beams against bending and shear.	
	2nd	Types of built up sections	
	3rd	design of simple built up sections using flange plates with I-sections	
	4th	design of simple built up sections using web plates.	
11th	1st	**6.0 Design of Tubular Steel structures**	
	2nd	Tube columns and compression members, crinkling	
	3rd	Round tubular sections, permissible stresses	
	4th	Tube tension members	
12th	1st	Tubular roof trusses.	
	2nd	Joints in tubular trusses	
	3rd	Design of tubular beams and purlins	
	4th	**7.0 Design of Timber Structures** Types of timber	
13th	1st	Types of grading of timber	
	2nd	Types of defects,	
	3rd	Types of permissible stresses	
	4th	Design of axially loaded timber columns solid, box	
14th	1st	built up section except spaced columns	
	2nd	Design of simple timber structural elements in flexure Solid sections	
	3rd	Design of simple timber structural elements in flexure flitched beams	
	4th	Problem practice	
15th	1st	form factor and moment of resistance of built-up sections	
	2nd	Problem practice	
	3rd	check for shear, bearing and deflection	
	4th	Problem practice	
16th	1st	**8.0 Design of Masonry Structures** Design consideration for masonry walls	
	2nd	Problem practice	
	3rd	Problem practice	
	4th	Load bearing walls -Permissible stresses Slenderness ratio, Effective length, Effective height	
17th	1st	Effective thickness, Eccentricity of loads, Grade of mortar	
	2nd	Non-Load bearing walls – Panel walls, Curtain walls, Partition walls.	
	3rd	Design consideration for masonry columns, piers and buttresses	
	4th	Problem practice on steel beam	
18th	1st	Problem practice on compression memeber	
	2nd	Problem practice on Tension memeber	
	3rd	REVISION	
	4th	Previous Year Question Discussion	

LECTURER
11·07·25

PRINCIPAL 11/7/25

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