Badriprasad Institute of Technology, Sambalpur

Lesson plan for Theory -2, Structural Design – II

Semester & Branch : 5th Sem Civil Engineering **Total Periods-60**

Name of the faculty : Mrs. Swagatika Panda **No of periods /week-4**

WEEK	CLASS DAY	THEORY TOPICS
1ST	1ST	**Introduction:**
		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.
2ND	1ST	Structural analysis and design philosophy.
	2ND	Continue of 1st Class
	3RD	Brief review of Principles of Limit State design.
	4TH	Continue of 3rd Class
3RD	1ST	**Structural Steel Fasteners and Connections.**
		Bolted Connections
	2ND	Classification of bolts, advantages and disadvantages of bolted connections.
	3RD	Continue of 2nd Class
	4TH	Different terminology, spacing and edge distance of bolt holes.
4TH	1ST	continue of 4th Class
	2ND	Types of bolted connections.
	3RD	Types of action of fasteners, assumptions and principles of design.
	4TH	Continue of 3rd Class
5TH	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	Continue of 1st Class
	3RD	Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces)
	4TH	Efficiency of a joint.
6TH	1ST	**Welded Connections:**
		Advantages and Disadvantages of welded connection
	2ND	Continue of 1st Class
	3RD	Types of welded joints and specifications for welding
	4TH	Design stresses in welds.
7TH	1ST	Strength of welded joints.
	2ND	Continue of 1st Class
	3RD	**Design of Steel tension Members**
		Common shapes of tension members.
	4TH	Maximum values of effective slenderness ratio.
8TH	1ST	Analysis and Design of tension members.(Considering strength only and concept of block shear failure.)

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	2ND	Continue of 1st Class
	3RD	Continue of 2nd Class
	4TH	Continue of 3rd Class
9TH	1ST	**Design of Steel Compression members.**
		Common shapes of compression members.
	2ND	Buckling class of cross sections, slenderness ratio
	3RD	Continue of 2nd Class
	4TH	Design compressive stress and strength of compression members.
10TH	1ST	continue of 4th Class
	2ND	Continue of 1st Class
	3RD	Analysis and Design of compression members (axial load only).
	4TH	Continue of 3rd Class
11TH	1ST	continue of 4th Class
	2ND	**Design of Steel beams:**
		Common cross sections and their classification.
	3RD	Deflection limits, web buckling and web crippling.
	4TH	Continue of 3rd Class
12TH	1ST	Design of laterally supported beams against bending and shear.
	2ND	Continue of 1st Class
	3RD	Continue of 2nd Class
	4TH	**Design of Tubular Steel Structures:**
		Round Tubular Sections, Permissible Stresses
13TH	1ST	Tubular Compression & Tension Members
	2ND	Joints in Tubular trusses
	3RD	Continue of 2nd Class
	4TH	**Design of Masonry Structures:**
		Design considerations for Masonry walls & Columns, Permissible stresses,
14TH	1ST	continue of 4th Class
	2ND	Continue of 1st Class
	3RD	Load Bearing & Non-Load Bearing walls,
	4TH	Continue of 3rd Class
15TH	1ST	continue of 4th Class
	2ND	Continue of 1st Class
	3RD	Slenderness Ratio, Effective Length, Height & Thickness.
	4TH	Continue of 3rd Class

Sign of Faculty Sign of HOD