GANDHI SCHOOL OF ENGINEERING

BHABANDHA, BERHAMPUR

BRANCH- CIVIL ENGINEERING

SEMESTER- 5TH

SUBJECT- Th2. STRUCTURAL DESIGN– II

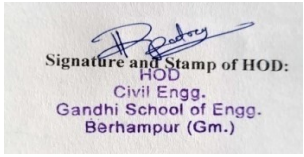
NAME OF THE FACULTY-ALOKA RANJAN SAHU

		Topic to be taken				Actual topic taken		
Sl. No	**Topic/ Module**	**No. of period**	**Details of the topics**	**Date**	**Topic No.**	**Topic Name**	**Date**	**Remarks**
1	Introduction	5	1.1 Common steel structures, Advantages & disadvantages of steel structures. 1.2 Types of steel, properties of structural steel. 1.3 Rolled steel sections, special considerations in steel design. 1.4 Loads and load combinations. 1.5 Structural analysis and design philosophy. 1.6 Brief review of Principles of Limit State	**02.08.2023-09.08.2023**	1.1 1.2 1.3 1.4 1.5 1.6	Common steel structures, Advantages & disadvantages of steel structures. Types of steel, properties of structural steel. Rolled steel sections, special considerations in steel design. Loads and load combinations. Structural analysis and design philosophy. Brief review of Principles of Limit State design	02.08.2023 04.08.2023 05.08.2023 07.08.2023 09.08.2023	

2	Structural Steel Fasteners and Connections	10	2.1 Bolted Connections 2.1.1 Classification of bolts, advantages and disadvantages of bolted connections. 2.1.2 Different terminology, spacing and edge distance of bolt holes. 2.1.3 Types of bolted connections. 2.1.4 Types of action of fasteners, assumptions and principles of design. 2.1.5 Strength of plates in a joint, strength of bearing type bolts (shear capacity& bearing capacity), reduction factors, and shear capacity of HSFG bolts. 2.1.6 Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces) 2.1.7 Efficiency of a joint. 2.2 Welded Connections: 2.2.1 Advantages and Disadvantages of welded connection 2.2.2 Types of welded joints and specifications for welding 2.2.3 Design stresses in welds. 2.2.4 Strength of welded joints.	11.08.2023-26.08.2023	2.1 2.1.1 2.1.2 2.1.3 2.1.4 2.1.5 2.1.6 2.1.7 2.2 2.2.1 2.2.2 2.2.3 2.2.4	Bolted Connections Classification of bolts, advantages and disadvantages of bolted connections. Different terminology, spacing and edge distance of bolt holes. Types of bolted connections. 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), reduction factors, and shear capacity of HSFG bolts. Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces) Efficiency of a joint. Welded Connections: Advantages and Disadvantages of welded connection Types of welded joints and specifications for welding Design stresses in welds. Strength of welded joints.	11.08.2023 12.08.2023 14.08.2023 16.08.2023 18.08.2023 19.08.2023 21.08.2023 23.08.2023 25.08.2023 26.08.2023	

3	Design of Steel tension Members	10	3.1 Common shapes of tension members. 3.2 Maximum values of effective slenderness ratio. 3.3 Analysis and Design of tension members.(Considering strength only and concept of block shear failure.)	28.08.2023-16.09.2023	3.1 3.2 3.3	Common shapes of tension members. Maximum values of effective slenderness ratio. Analysis and Design of tension members.(Considering strength only and concept of block shear failure.)	28.08.2023 04.09.2023 08.09.2023 09.09.2023 11.09.2023 13.09.2023 15.09.2023 16.09.2023 22.09.2023 23.09.2023	
4	Design of Steel Compression members	10	4.1 Common shapes of compression members. 4.2 Buckling class of cross sections, slenderness ratio 4.3 Design compressive stress and strength of compression members. 4.4 Analysis and Design of compression members (axial load only).	18.09.2023-07.10.2023	4.1 4.2 4.3 4.4	Common shapes of compression members. Buckling class of cross sections, slenderness ratio Design compressive stress and strength of compression members. Analysis and Design of compression members (axial load only).	25.09.2023 27.09.2023 29.09.2023 30.09.2023 04.10.2023 06.10.2023 07.10.2023 09.10.2023 11.10.2023 13.10.2023	
5	Design of Steel beams	10	5.1 Common cross sections and their classification. 5.2 Deflection limits, web buckling and web crippling. 5.3 Design of laterally supported beams against bending and shear.	09.10.2023-08.11.2023	5.1 5.2 5.3	Common cross sections and their classification. Deflection limits, web buckling and web crippling. Design of laterally supported beams against bending and shear.	16.10.2023 18.10.2023 01.11.2023 03.11.2023 04.11.2023 06.11.2023 08.11.2023 10.11.2023 11.11.2023 15.11.2023	

6	Design of Tubular Steel Structures	6	6.1 Round Tubular Sections, Permissible Stresses 6.2 Tubular Compression & Tension Members 6.3 Joints in Tubular trusses	10.11.2023- 20.11.2023	6.1 6.2 6.3	Round Tubular Sections, Permissible Stresses Tubular Compression & Tension Members Joints in Tubular trusses	17.11.2023 18.11.2023 20.11.2023 22.11.2023 24.11.2023 25.11.2023	
7	Design of Masonry Structures	9	7.1 Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.	22.11.2023- 08.12.2023	7.1	Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.	29.11.2023 01.12.2023 02.12.2023 04.12.2023 06.12.2023 08.12.2023 09.12.2023	



Signature & Stamp of HOD