

IDEAL SCHOOL OF ENGINEERING, RETANG-752054

DISCIPLINE: CIVIL ENGINEERING	SEMESTER: 5 TH SEM	NAME OF THE TEACHING FACULTY: ER. MEERA BEHERA
SUBJECT: STRUCTURAL DESIGN -I I (TH-2)	NO OF DAYS/ PER WEEK CLASS ALLOTTED: 5 CLASS P/W (75)	SEMESTER FROM DATE: 15/09/2022 TO DATE: 22/12/2022 NO. OF WEEKS: 15
WEEK	CLASS DAY	THEORY TOPICS
1 st	1 st	Introduction: 1.1 Common steel structures, Advantages & disadvantages of steel structures.
	2 nd	1.1 Common steel structures, Advantages & disadvantages of steel structures.
	3 rd	1.2 Types of steel, properties of structural steel.
	4 th	1.2 Rolled steel sections, special considerations in steel design.
	5 th	1.4 Loads and load combinations.
2 nd	1 st	1.5 Structural analysis and design philosophy.
	2 nd	1.5 Structural analysis and design philosophy.
	3 rd	1.6 Brief review of Principles of Limit State design.
	4 th	1.6 Brief review of Principles of Limit State design.
	5 th	Question and answer discussion
3 rd	1 st	Structural Steel Fasteners and Connections. 2.1 Bolted Connections
	2 nd	2.1.1 Classification of bolts, advantages and disadvantages of bolted connections
	3 rd	2.1.1 Classification of bolts, advantages and disadvantages of bolted connections
	4 th	2.1.2 Different terminology, spacing and edge distance of bolt holes.
	5 th	2.1.3 Types of bolted connections.
4 th	1 st	2.1.4 Types of action of fasteners, assumptions and principles of design.

	2 nd	2.1.5 Strength of plates in a joint, strength of bearing type bolts (shear capacity& bearing
	3 rd	2.1.5 Strength of plates in a joint, strength of bearing type bolts (shear capacity& bearing
	4 th	2.1.6 Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and
	5 th	2.1.6 Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and
5 th	1 st	2.1.7 Efficiency of a joint.
	2 nd	2.2 Welded Connections:
	3 rd	2.2.1 Advantages and Disadvantages of welded connection
	4 th	2.2.2 Types of welded joints and specifications for welding
	5 th	2.2.3 Design stresses in welds.
6 th	1 st	2.2.4 Strength of welded joints
	2 nd	Question and answer discussion
	3 rd	Design of Steel tension Members 3.1 Common shapes of tension members.
	4 th	3.1 Common shapes of tension members.
	5 th	3.2 Maximum values of effective slenderness ratio.
7 th	1 st	3.4 Analysis and Design of tension members.(Considering strength only and
	2 nd	3.4 Analysis and Design of tension members.(Considering strength only and concept of block
	3 rd	Question and answer discussion
	4 th	Design of Steel Compression members. 4.1 Common shapes of compression members.
	5 th	4.1 Common shapes of compression members
8 th	1 st	4.2 Buckling class of cross sections, slenderness ratio
	2 nd	4.2 Buckling class of cross sections, slenderness ratio
	3 rd	4.3 Design compressive stress and strength of compression members.

	4 th	4.3 Design compressive stress and strength of compression members.
	5 th	4.4 Analysis and Design of compression
9 th	1 st	4.4 Analysis and Design of compression members (axial load only).
	2 nd	Question and answer discussion
	3 rd	Design of Steel beams: 5.1 Common cross sections and their classification.
	4 th	5.1 Common cross sections and their classification.
	5 th	5.2 Deflection limits, web buckling and web crippling.
10 th	1 st	5.2 Deflection limits, web buckling and web crippling.
	2 nd	5.3 Design of laterally supported beams against bending and shear.
	3 rd	5.3 Design of laterally supported beams against bending and shear.
	4 th	Question and answer discussion
	5 th	Question and answer discussion
11 th	1 st	Design of Tubular Steel Structures: 6.1 Round Tubular Sections, Permissible Stresses
	2 nd	6.1 Round Tubular Sections, Permissible Stresses
	3 rd	6.2 Tubular Compression & Tension Members
	4 th	6.2 Tubular Compression & Tension Members
	5 th	6.3 Joints in Tubular trusses
12 th	1 st	6.3 Joints in Tubular trusses
	2 nd	Question and answer discussion
	3 rd	Design of Masonry Structures: 7.1 Design considerations for Masonry walls &
	4 th	Revision of last class
	5 th	7.2 Design considerations for Load Bearing & Non-Load Bearing walls

13 th	1 st	Revision of load bearing walls.
	2 nd	7.3 Design considerations for Permissible stresses
	3 rd	Revision of Previous Class.
	4 th	7.4 Design considerations for Slenderness Ratio
	5 th	Revision of Slenderness Ratio.
14 th	1 st	7.5 Design considerations for Effective Length
	2 nd	Revision
	3 rd	7.6 Design considerations for, Height & Thickness
	4 th	Question and answer discussion
	5 th	Question and answer discussion
15 th	1 st	Revision- Structural Steel Fasteners and Connections.
	2 nd	Design of Steel tension Members
	3 rd	Design of Steel Compression members.
	4 th	Question and answer discussion
	5 th	Question and answer discussion