

# LESSON PLAN

DEPARTMENT OF CIVIL ENGINEERING, ITT, CHOUDWAR

SUBJECT-STRUCTURAL DESIGN -II

Periods: 4 per week

SEMESTER: 5TH

NAME OF FACULTY-RITUPURNA SWAIN

Week	Class Day	Theory / Practical Topics
1st	1 <sup>st</sup>	1.Introduction: Common steel structures, Advantages & disadvantages of steel structures. Types of steel, properties of structural steel.
	2 <sup>nd</sup>	Rolled steel sections, special considerations in steel design. Loads and load combinations. Structural analysis and design philosophy
2 <sup>nd</sup>	1 <sup>st</sup>	Brief review of Principles of Limit State design. 2.Structural Steel Fasteners and Connections: Bolted Connections, Classification of bolts, advantages and disadvantages of bolted connections. Different terminology, spacing and edge distance of bolt holes. Types of bolted connections.
	2 <sup>nd</sup>	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.
3 <sup>rd</sup>	1 <sup>st</sup>	Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces) Efficiency of a joint.
	2 <sup>nd</sup>	Welded Connections: Advantages and Disadvantages of welded connection
4 <sup>th</sup>	1 <sup>st</sup>	Types of welded joints <b>and</b> specifications for welding ,Design stresses in welds
	2 <sup>nd</sup>	Strength of welded joints. 3.Design of Steel tension Members: Common shapes of tension members.
5 <sup>th</sup>	1 <sup>st</sup>	Maximum values of effective slenderness ratio.
	2 <sup>nd</sup>	Maximum values of effective slenderness ratio.
6 <sup>th</sup>	1 <sup>st</sup>	Maximum values of effective slenderness ratio.
	2 <sup>nd</sup>	Analysis and Design of tension members.( Considering strength only and concept of block shear failure.)
7 <sup>th</sup>	1 <sup>st</sup>	Analysis and Design of tension members.( Considering strength only and concept of block shear failure.) 4.Design of Steel Compression members: Common shapes of compression members
	2 <sup>nd</sup>	Common shapes of compression members
8 <sup>th</sup>	1 <sup>st</sup>	Buckling class of cross sections, slenderness ratio

	2 <sup>nd</sup>	Design compressive stress and strength of compression members
9 <sup>th</sup>	1 <sup>st</sup>	Analysis and Design of compression members (axial load only)
	2 <sup>nd</sup>	Analysis and Design of compression members (axial load only) 5.Design of Steel beams: Common cross sections and their classification
10 <sup>th</sup>	1 <sup>st</sup>	Common cross sections and their classification
	2 <sup>nd</sup>	Deflection limits, web buckling and web crippling
11 <sup>th</sup>	1 <sup>st</sup>	Deflection limits, web buckling and web crippling
	2 <sup>nd</sup>	Design of laterally supported beams against bending and shear.
12 <sup>th</sup>	1 <sup>st</sup>	Design of laterally supported beams against bending and shear. 6.Design of Tubular Steel Structures: Round Tubular Sections, Permissible Stresses
	2 <sup>nd</sup>	Tubular Compression & Tension Members
13 <sup>th</sup>	1 <sup>st</sup>	Tubular Compression & Tension Members
	2 <sup>nd</sup>	Joints in Tubular trusses 7.Design of Masonry Structures: Design considerations for Masonry walls & Column
14 <sup>th</sup>	1 <sup>st</sup>	Design considerations for Masonry walls & Column
	2 <sup>nd</sup>	Design considerations for Masonry walls & Column.
15 <sup>th</sup>	1 <sup>st</sup>	Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.
	2 <sup>nd</sup>	Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.