

## LESSON PLAN

(5 periods per week, total 60 periods in SEM)

<b>DISCIPLINE:</b> Civil Engineering		<b>SEMESTER:</b> 5 <sup>th</sup> Semester		<b>NAME OF THE TEACHING FACULTY:</b> Sima Chhatra PTGF (Civil Engg.)	
<b>SUBJECT:</b> Structural Design-II		<b>NO. OF DAYS/PER WEEK CLASSES ALLOTTED:</b> 4		<b>SEMESTER FROM DATE:TO DATE:</b> _____ <b>NO. OF WEEKS:</b> 15	
Week	Class Day		Theory Topic		
1 <sup>ST</sup>			1. Introduction		
	1 <sup>st</sup>	1.1	Common steel structures, Advantages & disadvantages of steel structures,		
		1.2	Types of steel, properties of structural steel.		
	2 <sup>nd</sup>	1.3	Rolled steel sections, special considerations in steel design.		
	3 <sup>rd</sup>	1.4	Loads and load combinations		
	4 <sup>th</sup>	1.5	Structural analysis and design philosophy.		
2 <sup>ND</sup>	1 <sup>st</sup>	1.6	Brief review of Principles of Limit State design		
			2. Structural Steel Fasteners and Connections.		
	2 <sup>nd</sup>	2.1 2.1.1	Bolted Connections, Classification of bolts, advantages and disadvantages of bolted connections,		
	3 <sup>rd</sup>	2.1.2	Different terminology, spacing and edge distance of bolt holes.		
	4 <sup>th</sup>	2.1.3 2.1.4	Types of bolted connections, Types of action of fasteners, assumptions and principles of design.		
3 <sup>RD</sup>	1 <sup>st</sup>	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 <sup>nd</sup>	2.1.6	Analysis & design of Joints using bearing type and HSFG bolts (except eccentric load and prying forces),		
	3 <sup>rd</sup>	2.1.7	Efficiency of a joint.		
	4 <sup>th</sup>	2.2 2.2.1	Welded Connections: Advantages and Disadvantages of welded connection		
4 <sup>TH</sup>	1 <sup>st</sup>	2.2.2	Types of welded joints and specifications for welding		
	2 <sup>nd</sup>	2.2.3	Design stresses in welds		
	3 <sup>rd</sup>	2.2.4	Strength of welded joints		
			3. Design of Steel tension Members		
	4 <sup>th</sup>	3.1	Common shapes of tension members.		
5 <sup>TH</sup>	1 <sup>st</sup>	3.1	Common shapes of tension members.		
	2 <sup>nd</sup>	3.2	Maximum values of effective slenderness ratio		

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6 <sup>TH</sup>	3 <sup>rd</sup>	3.2	Maximum values of effective slenderness ratio
	4 <sup>th</sup>	3.3	Analysis and Design of tension members(Considering strength only and concept of block shear failure.)
	1 <sup>st</sup>	3.3	Analysis and Design of tension members(Considering strength only and concept of block shear failure.)
	2 <sup>nd</sup>	3.3	Analysis and Design of tension members(Considering strength only and concept of block shear failure.)
	3 <sup>rd</sup>	3.3	Analysis and Design of tension members(Considering strength only and concept of block shear failure.)
7 <sup>TH</sup>	4 <sup>th</sup>	3.3	Analysis and Design of tension members(Considering strength only and concept of block shear failure.)
	1 <sup>st</sup>	3.3	Analysis and Design of tension members(Considering strength only and concept of block shear failure.)
			4. Design of Steel Compression members
8 <sup>TH</sup>	2 <sup>nd</sup>	4.1	Common shapes of compression members.
	3 <sup>rd</sup>	4.2	Buckling class of cross sections, slenderness ratio
	4 <sup>th</sup>	4.2	Buckling class of cross sections, slenderness ratio
	1 <sup>st</sup>	4.3	Design compressive stress and strength of compression members
	2 <sup>nd</sup>	4.3	Design compressive stress and strength of compression members
	3 <sup>rd</sup>	4.3	Design compressive stress and strength of compression members
	4 <sup>th</sup>	4.3	Analysis and Design of compression members (axial load only)
9 <sup>TH</sup>	1 <sup>st</sup>	4.3	Analysis and Design of compression members (axial load only)
	2 <sup>nd</sup>	4.3	Analysis and Design of compression members (axial load only)
	3 <sup>rd</sup>	4.3	Analysis and Design of compression members (axial load only)
10 <sup>TH</sup>	4 <sup>th</sup>	5.1	Common cross sections and their classification.
	1 <sup>st</sup>	5.2	Deflection limits, web buckling and web crippling.
	2 <sup>nd</sup>	5.2	Deflection limits, web buckling and web crippling.
	3 <sup>rd</sup>	5.2	Deflection limits, web buckling and web crippling.
11 <sup>TH</sup>	4 <sup>th</sup>	5.3	Design of laterally supported beams against bending and shear.
	1 <sup>st</sup>	5.3	Design of laterally supported beams against bending and shear.
	2 <sup>nd</sup>	5.3	Design of laterally supported beams against bending and shear.
	3 <sup>rd</sup>	5.3	Design of laterally supported beams against bending and shear.
12 <sup>TH</sup>	4 <sup>th</sup>	5.3	Design of laterally supported beams against bending and shear.
	1 <sup>st</sup>	5.3	Design of laterally supported beams against bending and shear.
			6. Design of Tubular Steel Structures
13 <sup>TH</sup>	2 <sup>nd</sup>	6.1	Round Tubular Sections, Permissible Stresses
	3 <sup>rd</sup>	6.2	Tubular Compression & Tension Members
	4 <sup>th</sup>	6.2	Tubular Compression & Tension Members
	1 <sup>st</sup>	6.2	Tubular Compression & Tension Members
	2 <sup>nd</sup>	6.3	Joints in Tubular trusses

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14 <sup>TH</sup>	3 <sup>rd</sup>	6.3	Joints in Tubular trusses
	4 <sup>th</sup>	7.1	7. Design of Masonry Structures: Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.
	1 <sup>st</sup>	7.1	Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.
	2 <sup>nd</sup>	7.1	Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.
15 <sup>TH</sup>	3 <sup>rd</sup>	7.1	Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.
	4 <sup>th</sup>	7.1	Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.
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	4 <sup>th</sup>	7.1	Design considerations for Masonry walls & Columns, Load Bearing & Non-Load Bearing walls, Permissible stresses, Slenderness Ratio, Effective Length, Height & Thickness.

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