

**TENTATIVE TEACHING PLAN (THEORY)**Department: **Civil Engineering**Name of Teacher: **Dr Muhammad Rehan Hakro**Subject: **Mechanics of Solids-II**Course Code: **CE250**Batch: **21CE (A)**Year: **2<sup>nd</sup>**Semester: **2<sup>nd</sup> (4<sup>th</sup>)**Semester Starting Date: **03-07-2023**Semester Suspension Date: **20-10-2023****Course Learning Outcomes (CLOs):** Upon successful completion of the course, the student will be able to:

CLO	Description	Taxonomy Level	PLO
1	ANALYSE plane stress and strain in the members subjected to various loading conditions.	C4	2
2	ANALYSE the horizontal shear stress/force in thin walled sections and circular sections within the elastic limits; and describe unsymmetrical bending, curved beams, theories of failure, creep, fatigue and inelastic materials.	C4	2

S #	Topic	CLO's	No: of lecture/hrs. required
1.	Introduction to strength of materials, revision to stress, strain, types of stresses, analysis of internal forces	1	1
2.	Analysis of plane stress, stresses on inclined planes, principal stresses and maximum shear stress, analytical method for finding normal, shear and maximum stress.	1	4
3.	Graphical method for finding the stresses on inclined planes, principal stresses and maximum shear stress.	1	4
4.	Problems related with stress analysis	1	2
5.	Stress concentration, maximum stress at a discontinuity in a structural member using stress concentration factors	1	1
6.	Stresses due to combined bending and torsion	1	3
7.	Introduction to two dimensional (2D) or plane strain	1	1
8.	Derivation of strain transformation equations for the case of plane strain	1	1
9.	Mohr's circle for plane strain	1	2
10.	Problems on determination of the principal strains, principle planes, and maximum shear strain using Mohr's circle	1	2
11.	Introduction to strain rosette, experimental strain measurement	1	1
12.	Problems of stain rosette	1	2
13.	Horizontal shear stress in beams	2	3
14.	Shear flow and shear centre	2	2
15.	Built-up beams	2	3
16.	Stress due to unsymmetrical bending	3	2
17.	Problems on determination of stress due to unsymmetrical bending (Problems)	3	2
18.	Stress in curved beams	3	2
19.	Problems on determination of stress in curved beams	3	2
20.	Creep and fatigue	3	2
21.	Theories of failure	3	3
22.	Inelastic action, limit torque, limit moment, residual stress	3	3
<b>TOTAL</b>			<b>48</b>

Signature of Teacher:

Dated: 16-06-2023

Remarks of DMRC: **APPROVED**

Signature of Chairman

Dated: 01-08-2023