



# MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY JAMSHORO

## Department of Civil Engineering

### LESSON PLAN

COURSE TITLE: <b>Theory of Structures</b>		COURSE CODE: <b>CE222</b>	CREDIT HOURS: <b>02</b>	MINIMUM CONTACT HOURS: <b>32</b>
COURSE INSTRUCTOR: <b>Engr. Samar Hussain Rizvi (A+B) / Engr. Fahad Ali Shaikh (C+D)</b>				
Batch: <b>23CE</b>	Semester: <b>3<sup>rd</sup></b>	Semester Starting Date: <b>15-07-2024</b>	Semester Suspension Date: <b>06-11-2024</b>	

#### COURSE LEARNING OUTCOMES:

CLO No.	Description	Taxonomy level	Associated PLO
1	ANALYSE shear force and bending moment in beams and frames.	C4	2
2	EVALUATE axial Forces in Trusses; axial force, shear force and bending moment in arches; buckling of columns; and influence lines and moving loads.	C5	2

#### LESSON CONTENTS AND ASSOCIATED CLO(s)

Contents	CLO No.	Marks Assigned	Delivery Methods	Assessment Methods (Marks)
<ul style="list-style-type: none"> <li>● <b>Introduction – Basics of Structures</b> <ul style="list-style-type: none"> <li>– Introduction to subject, syllabus, and reference books</li> <li>– Types of structures, Loads on structures.</li> <li>– Types of beams, supports and Loadings.</li> <li>– Determinate and Indeterminate structures.</li> </ul> </li>   <li>● <b>Reactions, Shear force and bending moment in beams and frames.</b> <ul style="list-style-type: none"> <li>– Support reactions for different beams</li> <li>– Reactions of combined beams with internal hinges.</li> <li>– Concept of Shear Force and Bending moment</li> <li>– Shear Force (SF) and its sign conventions</li> <li>– Bending Moment (BM) and its sign conventions</li> <li>– SF and BM diagrams of determinate beams.</li> <li>– SF and BM of beams carrying Point loads</li> <li>– SF and BM of Uniformly Distributed Load</li> <li>– SF and BM of Uniformly Varying Load</li> <li>– Relationship between loading intensity, SF and BM.</li> <li>– Maximum shear and moment calculations.</li> <li>–</li> </ul> </li>   <li>● <b>Determinate Plane Frames</b> <ul style="list-style-type: none"> <li>– Frames- its types-Equilibrium of Frames</li> <li>– Analysis of Forces in Gable Frames</li> <li>– SF and BM diagrams of Frames.</li> </ul> </li> </ul> <p><b>No. of lectures Required : 16</b></p>	<b>1</b>	<b>25</b>	<ul style="list-style-type: none"> <li>● Class Lecture</li> <li>● Discussion</li> <li>● Q/A</li> <li>● Problems Solving</li> </ul>	<ul style="list-style-type: none"> <li>● Assignment (05)</li> <li>● Class Test (05)</li> <li>● Mid semester Exam (15)</li> </ul>



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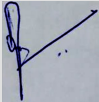

## Department of Civil Engineering

### LESSON PLAN

<ul style="list-style-type: none"> <li>● <b>Trusses</b> <ul style="list-style-type: none"> <li>– Introduction to trusses and its method of solution</li> <li>– Method of Joints</li> <li>– Method of Sections</li> <li>– Analysis of forces in trusses</li> </ul> </li> <li>● <b>Arches</b> <ul style="list-style-type: none"> <li>– Arches and its components.</li> <li>– Forces acting on Arches.</li> <li>– Analysis of Three hinged arches.</li> </ul> </li> <li>● <b>Columns</b> <ul style="list-style-type: none"> <li>– Introduction to Columns,</li> <li>– Short and Long Columns</li> <li>– Euler’s Formula for Buckling load.</li> <li>– Design Loads on Columns</li> </ul> </li> <li>● <b>Influence lines and moving loads.</b> <ul style="list-style-type: none"> <li>– Moving Loads on Beams</li> <li>– Influence lines</li> <li>– Influence lines for reactions, shear force and bending moment.</li> </ul> </li> </ul> <p><b>No. of lectures Required : 16</b></p>	<b>2</b>	<b>25</b>	<ul style="list-style-type: none"> <li>● Class Lecture</li> <li>● Discussion</li> <li>● Q/A</li> <li>● Problems Solving</li> <li>● Design Practice</li> </ul>	● Final Exam (25)
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#### ASSESSMENT DETAILS

S. No.	Assessment Activities	Marks	Activities		CLO(s) to be assessed
1	Sessional	10	Assignment(s)	1	1
			Class Test	1	1
2	Mid Semester Exam	15	1		1
3	Final Semester Exam	25	1		2

Prepared by: <b>Engr. Samar Hussain Rizvi</b>  Signature:  Dated: 29-05-2024	Reviewed by: <b>Curriculum Review Committee</b>  Signature:  Dated: 30-05-2024	Approved by: <b>Chairman, CED</b>   Signature: Dated: 30-05-2024
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