



MEHRAN UNIVERSITY OF ENGINEERING AND TECHNOLOGY JAMSHORO

Department of Civil Engineering

LESSON PLAN


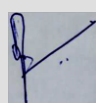
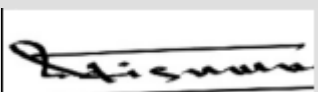
COURSE TITLE: Structural Analysis		COURSE CODE: CE306	CREDIT HOURS: 03	MINIMUM CONTACT HOURS: 48
COURSE INSTRUCTOR: Engr. Fahad Shaikh (A+B+C)				
Batch 22CE (A+B+C)	Semester: 5 th	Semester Starting Date: 09-12-2024	Semester Suspension Date: 18-04-2025	

COURSE LEARNING OUTCOMES:

CLO No.	Description	Taxonomy level	Associated PLO
1	SOLVE beams, frames and trusses for deflections and slopes in determinate and indeterminate structures.	C3	3
2	ANALYZE the structures by modern analytical methods	C4	2

LESSON CONTENTS AND ASSOCIATED CLO(s)

Contents	CLO No.	Marks Assigned	Delivery Methods	Assessment Methods (Marks)
<p>Introduction</p> <ul style="list-style-type: none"> -Determinate and indeterminate structures -Degree of indeterminacy in beams, frames and trusses <p>Determinate Structures</p> <ul style="list-style-type: none"> -Beams: Double integration, Moment area, Conjugate beam Unit load method and theory of Castiglione. - Frames: Unit load, Moment area method and movement of joints -Trusses: Unit load, Joint displacement, Graphical and angle weight method. <p>No. of Lectures: 20</p>	1	40	<ul style="list-style-type: none"> • Class Lecture • Discussion 	<ul style="list-style-type: none"> • Mid semester Exam (30) • Class Test-I (05) • Assignment-I (05)

<p>Indeterminate structures</p> <p>-Consistent deformation method: statically indeterminate beams /frames of one and two redundant.</p> <p>-Laws of reciprocal deflections</p> <p>-Theorem of least work</p> <p>-Three Moment Theorem: Derivation of the theorem and application to statically indeterminate beams</p> <p>-Method of Slope Deflection: Derivation of equation, Analysis of continuous beams and portal frames without joint movement/with joint movement</p> <p>-Analysis of continuous beams and portal frames due to yielding of supports</p> <p>-Moment Distribution Method Concept, distribution and carryover factors</p> <p>-Analysis of continuous beams and portal frames without joint movement/with joint movement.</p> <p>-Analysis of continuous beams and portal frames due to yielding of supports.</p> <p>No. of Lectures: 20</p>						1	45	<ul style="list-style-type: none"> • Class Lecture • Discussion 	<ul style="list-style-type: none"> • Class test-II (05) • Final Exam (40)
<p>Matrix Stiffness Method.</p> <p>-Introduction to Matrix Stiffness Method</p> <p>-Methods of formation of element stiffness matrix for truss, beam and frame element.</p> <p>-Deformation transformation matrix, Structures stiffness matrix for truss, beam and frame elements.</p> <p>-Analysis of indeterminate structure using stiffness method.</p> <p>No. of Lectures: 08</p>						2	15	<ul style="list-style-type: none"> • Class Lecture • Discussion 	<ul style="list-style-type: none"> • Class test - III (05) • Assignment-II (10)
S.No	Assessment Activities	Marks	Activities		CLO(s) to be assessed				
1	Class Test/Assignment/Quiz	30	Assignment(s)	2	1,2				
			Class test(s)	3	1,2				
2	Mid Semester Exam	30	1		1				
3	Final Semester Exam	40	1		1				
Prepared by: Engr. Fahad Ali Shaikh  Dated: 09-12-2024		Reviewed by: Curriculum Review Committee  Signature: Dated: 20-12-2024		Approved by: Chairman, CED  Signature: Dated: 20-12-2024					

