

Faculty of Engineering & Technology

Structural Mechanics 3

Information :

Course Code : SCM 411 **Level :** Undergraduate **Course Hours :** 3.00- Hours

Department : Department of Structural Engineering & Construction Management

Instructor Information :

Title	Name	Office hours
Lecturer	Dina Muhammad Fathy Ors	28
Teaching Assistant	Ahmed Taher Abdelhamed Mohamed Yousef	
Teaching Assistant	Ahmed Salah Rashad Ahmed Abdelhakk	

Area Of Study :

At the end of this course, students will be able to:

1. Constitute the stiffness matrix of the structure elements in their local coordinates
2. Write force equilibrium equations at the joints of the structure
3. Assemble the overall stiffness matrix of the structure in the global axes
4. Calculate the internal forces in the statically indeterminate structure

Description :

Matrix analysis of structures: flexibility method, stiffness method, Applications on all types of plane and space skeletal structures

Course outcomes :

a.Knowledge and Understanding: :

1 -	Understand basic concepts of structural modeling.
2 -	Identify Techniques of solving different types of statically indeterminate plane and space structures. (Stiffness Method)

b.Intellectual Skills: :

1 -	Constitute the stiffness matrix of the structure elements in their local coordinates
2 -	Write force equilibrium equations at the joints of the structure
3 -	Assemble the overall stiffness matrix of the structure in the global axes
4 -	Calculate the internal forces in the statically indeterminate structure

c.Professional and Practical Skills: :

1 -	Ability to handle different types of structures
2 -	Ability to handle different structural systems
3 -	Apply knowledge of mathematics, science and engineering

d.General and Transferable Skills: :

1 -	Manage time and meet deadlines.
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Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Slope-Deflection Method applied on plane beams and frames	15	3	3
Fundamentals of the Stiffness Method and its application on plane beams, frames, and trusses	30	6	6
Stiffness Method applied on grids	10	2	2
Stiffness Method applied on space trusses			

Teaching And Learning Methodologies :

Class Lectures

Tutorials

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Final-term Examination	40.00		
Mid-Term Examinations	40.00		
Quizzes	10.00		
Semester Work	10.00		

Course Notes :

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Recommended books :

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Periodicals :

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Web Sites :

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