



**Jordan University of Science and Technology**  
**Faculty of Engineering**  
**Civil Engineering Department**

CE431 Structural Analysis (2) - JNQF Level: 7

First Semester 2023-2024

**Course Catalog**

3 Credit Hours. 3 Credit hours (3 h lectures). Indeterminate structures, virtual work method, slope deflection method, and moment distribution method, influence line for first-degree indeterminate beams, stiffness method for trusses, beams, and frames..

**Text Book**

<b>Title</b>	Structure Analysis
<b>Author(s)</b>	R.C. Hibbeler
<b>Edition</b>	8th Edition
<b>Short Name</b>	Ref#1
<b>Other Information</b>	

**Instructor**

<b>Name</b>	<b>Prof. Yousef Al Rjoub</b>
<b>Office Location</b>	-
<b>Office Hours</b>	
<b>Email</b>	ysalrjoub@just.edu.jo

**Class Schedule & Room**

Section 1:  
Lecture Time: Sun, Tue : 12:30 - 13:30  
Room: C3018

Prerequisites		
Line Number	Course Name	Prerequisite Type
233321	CE332 Structural Analysis (1)	Prerequisite / Pass
233041	CE304 Numerical Methods	Pre./Con.

Tentative List of Topics Covered		
Weeks	Topic	References
Weeks 1, 2, 3, 4	Analysis of Statically Indeterminate Structures by the virtual work Method and Influence lines for Statically Indeterminate	
Weeks 5, 6	Displacement Method of Analysis: Slope-Deflection Equations	
Weeks 7, 8, 9	Displacement Method of Analysis: Moment Distribution	
Weeks 10, 11, 12	Influence lines Using the Muller Breslau's principle	
Weeks 13, 14, 15	Trusses, beams and Frames Analysis Using the Stiffness Method	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Apply the virtual work method to analyze statically indeterminate beams, frames, trusses, and composite structures. [1SO1] [1L7K1]	25%	
Students be able to use the slope-deflection equations to analyze statically indeterminate beams and frames. [1SO1] [1L7K1]	15%	
Students will analyze continuous beams and frames using the moment distribution method. [1SO1] [1L7K1]	20%	
Apply the matrix structural method to analyze statically indeterminate trusses, beams, and frames. [1SO1] [1L7K1, 1L7S1]	20%	
Students will be able to use Muller Breslau's principle to draw the influence lines for statically indeterminate trusses and beams. [1SO1] [1L7K1]	20%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
100						

Relationship to NQF Outcomes (Out of 100%)	
L7K1	L7S1
90	10

<b>Evaluation</b>	
<b>Assessment Tool</b>	<b>Weight</b>
First Exam	25%
Second Exam	25%
Homework	10%
Final Exam	40%

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