

**The University of Jordan
School of Engineering**



Department	Course Name	Course Number	Semester
Mechanical Engineering	Finite Element Method	0944706	

2005 Course Catalog Description

Instructors

Name	E-mail	Sec	Office Hours	Lecture Time

Text Books

	Text book 1	Text book 2
Title	The Finite Element Method: A Practical Course	
Author(s)	G. R. Liu and S. S. Quek	
Publisher, Year, Edition	Butterworth-Heinemann	

References

Books	1. Finite Element Analysis: From Concepts to Applications, David S. Burnett, Addison-Wesley Publishing Company. 2. An Introduction to the Finite Element Method, J. N. Reddy, McGraw-Hill Book Company. 3. A First Course in the Finite Element Method, Daryl L. Logan, PWS Publishing Company. 4. Fundamentals of Finite Element Analysis, David V. Hutton, McGraw-Hill Book Company
Journals	Finite Elements in Analysis and Design - Journal - Elsevier
Internet links	http://homepage.usask.ca/~ijm451/finite/fe_resources/node15.html https://www.ilsb.tuwien.ac.at/links/felinks.html ; http://staff.ttu.ee/~alahe/alem.html

Prerequisites

Prerequisites by topic	Calculus, differential equations, Dynamics, Strength of materials, Numerical analysis, Heat transfer
Prerequisites by course	Engineering Numerical Methods (0904302)
Co-requisites by course	
Prerequisite for	

Topics Covered

Week	Topics	Chapter in Text	Sections
	Computational Modelling	1	
	Introduction to Mechanics for Solids and Structures	2	
	Fundamentals for Finite Element Method	3	
	FEM for Trusses	4	
	FEM for Beams	5	
	FEM for Frames	6	
	FEM for Two-Dimensional Solids	7	
	FEM for Plates and Shells	8	
	FEM for 3D Solids	9	
	Special Purpose Elements	10	
	Modelling Techniques	1	

	FEM for Heat Transfer Problems	12	
	Using ABAQUS	13	
Course Outcomes			
1.			
2.			
3.			
Evaluation			
Assessment Tools	Expected Due Date		Weight
Project			30%
Midterm Exam			30%
Final Exam			40%
Contribution of Course to Meet the Professional Components			
Relationship to Mechanical Engineering Program Objectives (MEPOs)			
MEPO1	MEPO2	MEPO3	MEPO4
Updated by ABET Committee, 2024			