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1.

This class deals with the fundamentals of finite element methods and their applications on practical engineering problems.

Topic include basic treatments of simple springs, bars, beam bending, elementary plane stress/strain elements, axisymmetric

elements, isoparametric formulation of the finite element method, plate elements, and thermal analysis. We will practice application

of computational finite element method using various examples and practical problems.

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A first course in the finite element method, Daryl Logan, 4th edition, 2007

Finite Element Modeling for Stress Analysis, Cook, R. D., Wiley, 1995

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1	Introduction	LECTURE	
2	Stiffness Method	LECTURE	
3	Truss Equation, Project proposal	LECTURE	PROJECT TOPIC
4	Beam Equation	LECTURE	
	Example - computer		
5	Beam Equation	LECTURE	
6	Frame and Grid Equations	LECTURE	
	Example - computer		
7	Plane problems	LECTURE	
8	Midterm		

		EXAM	
9	Plane Stress and Strain Mesh generation and FEM, Results comparison Example - computer	LECTURE, COMPUTER LAB	
10	Axisymmetric Elements	LECTURE	
11	Isoparametric Formulation	LECTURE	
12	Isoparametric Formulation	LECTURE	
13	Plate and Shell	LECTURE	
14	Thermal analysis	LECTURE	
15	Term Project Presentation Term project presentation and discussion	PRESENTATION	TERM PAPER
16	Final Exam	EXAM	

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