

Course Information	
Course title	Method of Finite Elements
Semester	114-2
Designated for	
Instructor	TUNG-YU WU
Curriculum Number	CIE7017
Curriculum Identity Number	521EM1210
Class	
Credits	3.0
Full/Half Yr.	Half
Required/ Elective	Elective
Time	Wednesday 2,3,4(9:10~12:10)
Remarks	Restriction: MA students and beyond The upper limit of the number of students: 52.
Course introduction video	
Table of Core Capabilities and Curriculum Planning	Table of Core Capabilities and Curriculum Planning
Course Syllabus	
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Course Description	This course aims to introduce the finite element method, which has been considered the most useful tool for solving engineering problems governed by partial differential equations. The contents are vast, and the commercial programs are sophisticated. It is, therefore, important to cover the essential aspects of the method. This course will guide you through the mathematical and algebraic basis of the method and help you acquire hands-on experience in programming and commercial software.
Course Objective	Develop a solid foundation in FEM theory and formulation, and apply it through hands-on finite element programming in MATLAB and practical

	modeling/analysis workflows using commercial software (ABAQUS)
Course Requirement	
Student Workload (Expected weekly study hours before and/or after class)	one and four weekly study hours before and/or after class
Office Hours	Appointment required.
Designated reading	
References	

Grading				
	No.	Item	%	Explanations for the conditions
	1.	Homework	40%	including problems solving, MATLAB programming, and FEA practices
	2.	Midterm Exam	30%	
	3.	Quiz	10%	
	4.	Final Project	20%	
1. NTU has not set an upper limit on the percentage of A+ grades. 2. NTU uses a letter grade system for assessment. The grade percentage ranges and the single-subject grade conversion table in the NATIONAL TAIWAN UNIVERSITY Regulations Governing Academic Grading are for reference only. Instructors may adjust the percentage ranges according to the grade definitions. For more information, see the Assessment for Learning Section.				

Progress		
Week	Date	Topic
Week 1	2/25	Fundamental Concept in Finite Element Formulation (1/2)
Week 2	3/4	Fundamental Concept in Finite Element Formulation (2/2)
Week 3	3/11	1D Finite Element Formulation (1/4)
Week 4	3/18	1D Finite Element Formulation (2/4)
Week 5	3/25	1D Finite Element Formulation (3/4)
Week 6	3/30	1D Finite Element Formulation (4/4)
Week 7	4/8	2D T3 and Rectangular Finite Element Formulation (1/3)
Week 8	4/15	2D T3 and Rectangular Finite Element Formulation (2/3)

Week 9	4/22	2D T3 and Rectangular Finite Element Formulation (3/3)
Week 10	4/29	Midterm Exam
Week 11	5/6	2D Isoparametric Formulation (1/4)
Week 12	5/13	2D Isoparametric Formulation (2/4)
Week 13	5/20	2D Isoparametric Formulation (3/4)
Week 14	5/27	2D Isoparametric Formulation (4/4)
Week 15	6/3	1. Quiz 2. Application of Finite Element Analysis in Structural Engineering by Dr. 吳演聲
Week 16	6/10	Final Project Due