

MEEM 4405

Instructor: Madhukar Vable

Office: ME-EM 907

Phone:487-2747

e-mail: mavable@mtu.edu

Office Hours:

Web. Address: <http://www.me.mtu.edu/%7Emavable>

Book: Robert D. Cook "Finite Element Modeling For Stress Analysis" , John Wiley & Sons, New York 1995

Reference Books:

Warren C. Young "Roark's formulas for stress and strain"

Walter D. Pilkey "Peterson's stress concentration factors"

Grading System: 2 midterm (20% each), 1 Lab. Exam (20%), Final (20%), Lab. Assignments¹(20%) **NO MAKE UP EXAM**

D=55-64% D+=65-69% C=70-74% C+=75-79% B=80-84% B+=85-89% A=90%+

Class	Section	Topic	Class-Problems	Home Problems
1	B.11 & B1.6	Introduction		
2		Mechanics of Materials Review		
3	N 7.0-7.3	Energy Methods	7.3,7.4	
4	N7.4	Virtual Work	7.7	7.1,7.2,7.5
5	N 8.1	Rayleigh-Ritz		8.2
6	N 8.1	Rayleigh-Ritz	8.6	8.3,8.5
7	N8.2	FEM: Lagrange Polynomials		
8	N8.3,B2.1-2.2	Axial Elements		
9	N8.3,B2.1-2.2	Axial Elements	8.8	8.9, 8.11
10	N8.3-8.4	Axial Elements, Shaft Elements	8.10	8.13, 8.15
11	N8.5,B2.3-2.5	Symmetric Beam Element	8.23	8.21,8.24
12	EXAM 1 Wed. October 5th 7:15--9:00 PM			
13	N8.5,B2.3-2.5	Symmetric Beam Element		
14	N8.6, B3.1-3.4	FEM 2-D		
15	N8.6, B3.1-3.4	FEM 2-D		
16	N8.6, B3.8-3.10	FEM 2-D		
17	B4.1-4.3	Storage and Solution		
18	B4.4 -4.7	Isoparametric elements, Numerical Integration		
19	B4.8-4.12	Convergence, Patch Test		
20	B5.1-5.4,5.6-5.10	Modeling, Error in Analysis, Mesh Refinement		
21	B6.1, 6.4	Solids of Revolutions		
22	B7.1-7.2,7.4	Plate and Shell elements		
23	B6.2	3-D Elements		
24	EXAM 2 Wed. Nov. 16th 7:15--9:00 PM			
25		Project Discussion		
26	B8.1,8.2	1-D Heat Conduction/ Thermal stresses		
27	B8.3	2-D Steady state heat transfer		
28		REVIEW		

Lab Number	Instructional Lab.	Assignment Lab
1.	September 6th	September 13th
2.	September 20th	September 27th
3.	October 4th	October 11th
4.	October 18th	October 25th
5.	November 1st	November 8th
6.	November 15th	November 29th
Lab. Final Dec. 6th during your Lab. Times		

1. Attendance in Lab is 20% of your report grade unless excused by Vable. Assignments due in class on Monday after the Lab. assignments. 10% per day deduction for late assignments.