

ME 461-Finite Element Analysis, Section 1

Spring 2008

Section 1: T, R 4:15-5:30 110 Walker Bldg

Section 2: T, R 11:15-12:30 101 Leonhard Bldg

Instructor:

[Dr. Michaleris, Pan, pxm32@psu.edu](mailto:pxm32@psu.edu) 232 Reber, 863-7273, Office hours: T, TR. 3:15-4:15pm

Teaching Assistant:

To be announced

Required Text:

T.Chandrupatla and A. Belegundu. Introduction to Finite Elements in Engineering, 3rd Edition, Prendice Hall, 2001.

Supplementary Text:

Amos Gilat. Matlab. An introduction with applications. John Wiley. 2004. ISBN: 0-471-43997-5.

[Grading Policy](#), [Class Objectives](#), [Tentative Schedule](#), [Projects](#), [Notes](#), [Links](#)

Grading Policy:

Weekly projects	(35%)
Final project	(30%)
Midterm	(35%)

One point (1/10) penalty will be taken for each date past due. No assignments accepted a week past due.

Class Objectives:

This is an introductory course in the Finite Element Method. The mathematical formulation of the method will be presented and then applied to problems in elasticity and heat transfer. Projects will be assigned to demonstrate the finite element method in simplified problems using Matlab and realistic problems using the commercial code Ansys.

[Academic Integrity Policy \(University Policy 49-20 \)](#)

Tentative Schedule:

Dates	Topic	Location	Reading
Jan 15, 17	Elasticity review	Walker/Leonhard	Ch 1
Jan 22, 25	Vector Calculus	Walker/Leonhard	Supplementary text
Jan 29, 31	Potential Energy and Galerkin Methods	Walker/Leonhard	Ch 3
Feb 5, 7	1D Elasticity Problems	Walker/Leonhard	Ch 3
Feb 12, 14	Planar Truss problems	Walker/Leonhard	Ch 4
Feb 19, 26	Intro to Linux and and Ansys	316 Hammond	
Feb 28, Mar 4	2-D Elasticity Formulations	Walker/Leonhard	Ch 5
March 7	Midterm	Walker/Leonhard	
March 18, 20	Beams Frames	Walker/Leonhard	Ch 8
March 25, 27	Computer demo	316 Hammond	
April 1, 3	Heat transfer	Walker/Leonhard	Ch 10
April 8, 10	Structural Dynamics	Walker/Leonhard	Ch 11
April 15	Computer dcmo	316 Hammond	
April 17, 22	NL FEA and Element technology	Walker/Leonhard	notes
April 24	Final project consultation	316 Hammond	
April 29, May 1	Final project presentations (in class)	Walker/Leonhard	

Projects:

Notes:**Linux Lab File system info:**

The students' home directories are actually their personal directories in the PASS space. If they go to a windows lab machine, they can access the PASS space through windows explorer. If they click on the "My Computer" on the desktop there should be a drive already mounted to their PASS space.

They can also access their files in the PASS space by using the PSU Portal. <http://portal.psu.edu> (good for home use, or at least when not in an ITS lab)

USB memory stick use in linux labs:

After plugging in a usb memory stick, students need to type 'mount /mnt/usbmedia'. This should create a mount point to their USB device and should let them access it.

Links:

[Quick Summary of Unix Commands](#)

[Unix Intro](#)
