

EGM 4350 – FINITE ELEMENT ANALYSIS FOR ENGINEERING DESIGN
Common course Syllabus

Catalog Data: 3 CREDITS, Fundamental concepts of finite element software to perform the stress, vibration, and heat transfer analyses of various engineering design problems.

Goals: To introduce our students the basic concepts of finite element method and how to use finite element software to solve engineering and scientific problems.

Prerequisites:

1. EGN 3331 Strength of Materials

Topics: (the number of lectures are guidelines and are subject to change by the instructor)

1. Introduction (4 hours).
2. Trusses (4 hours).
3. One-dimensional Elements (4 hours).
4. Analysis of One-dimensional Heat Transfer Problems (4 hours).
5. Two-dimensional Elements (5 hours).
6. Analysis of Two-dimensional Heat Transfer Problems (5 hours).
7. Analysis of Two-dimensional Solid Mechanics Problems (5 hours).
8. Three-dimensional Element (5 hours).
9. Vibration Problems (4 hours).
10. Additional topics at the discretion of the instructor.

Course Outcomes: (numbers in parentheses indicate correlation of the outcome with the appropriate ABET program outcomes 1-7)

1. The student will be able to use ANSYS to build a finite element model. (1,2,6)
2. The student will be able to use ANSYS to solve linear elastic problems and model analysis for trusses, beams and frames, and 2 and 3 dimensional structures. (1,2,6)
3. The student will be able to use ANSYS to solve heat transfer problems. (1,2,6)
4. The student will be able to prepare a report based on results obtained from ANSYS solution. (3)

Updated: 1/20