

ABET Course Syllabus for MET 420: Finite Element Analysis

1. Course number and name: MET 420: Finite Element Analysis
2. Credits and contact hours: 4 credit hours, 6 hours per week
3. Instructor's Name: Charles Pringle, PE
4. Textbook, title, author, and year:
 - *A First Course in the Finite Element Method, 6th Ed.*, by Logan, Daryl L.; Cengage Learning, 2017.
- a. Other supplemental materials:
 - Internet access
 - Word processing
 - Spreadsheet
 - Electronic device
 - PDF
5. Specific course information:
 - a. Brief description of the content of the course (catalog description): Computerized modeling of structural and thermal design problems. This course consists of two hours lecture and four hours laboratory per week. Course will be offered every year (Winter).
 - b. Pre-requisites: ETSC 265 and MET 426.
 - c. Required, elective, or selected elective (as per Table 5-1) course in the program: Selective Elective
6. Specific goals for the course:

This course introduces the student to numerical analysis.

 - a. Specific outcomes of instruction:
 - Demonstrate and calculate the analytical method of finite element analysis (FEA)
 - Evaluate appropriate use of numerical analysis techniques for a given engineering problems
 - Assess the results of FEA
 - Defend use of good engineering judgment in the design of FEA models
 - Apply computer-based systems to develop and analyze problems
 - Document and verbally articulate model usage and results
 - b. Criterion 3 student outcomes addressed by course:

3 (1)

7. Brief list of topics covered:
- Math
 - Finite Element Method
 - Structures and Elements
 - Trusses
 - Beams and Frames
 - Two-Dimensional Solids
 - Three-Dimensional Solids