



MENG 4326 – Finite Element Analysis
Course Syllabus

Semester / Year	Spring 2025
Catalog Description	A required introductory course providing undergraduate engineering students with fundamentals of finite element (FE) concepts, analysis, and applications in real-world problems. A software package will be selected for use as a learning support tool, which also provides students with a marketable skill. The course includes a project as a major component.
Prerequisites	MENG 3401 – Thermodynamics, MENG 3309 Mechanical Systems Design (pre-requisite or co-requisite)
Section Number	001
Instructor Name	Dr. Chung Hyun Goh
Contact Information	Email: cgoh@uttyler.edu Phone: 903-566-6125 Office: RBN 3007
Class Type / Instruction Mode / Location	Face-to-face / Lecture / RBN 3039
Class Time	Tu/Th 5:00 PM – 6:20 PM
Office Hours	M 11:00 AM – 12:00 PM, Tu/Th 2:30 PM – 3:30 PM or by appointment
No. of Credits	3 credits (Lecture)
Required Textbook & Resources	<ul style="list-style-type: none"> Finite Element Analysis: Theory and Application with ANSYS – Saeed Moaveni Students taking courses in Mechanical Engineering (ME) are expected to have a laptop at their disposal. For more details, refer to the Student Laptop Policy at the Department of Mechanical Engineering https://uttyler.smartcatalogiq.com/en/2022-2023/Catalog/College-of-Engineering
Optional References	<ul style="list-style-type: none"> Finite Element Simulations with ANSYS Workbench 24: Theory, Applications, Case Studies – Huei-Huang Lee Analysis of Machine Elements Using SolidWorks Simulation 24 – S.S. Nudahi and J.R. Steffen SolidWorks Simulation 2024: A Power Guide for Beginners and Intermediate Users, CADArtifex, J. Willis, and S. Dogra
Additional Rules and Requirements	AI tools are allowed to support students' learning and productivity, provided that their use aligns with academic integrity standards. When required, students must disclose their use of AI.
Evaluation Method	Midterm Exam 25% Final Project (Report, Presentation) 30% Homework (Projects and SW Assignments) 20%, Quizzes 15%, Course Participation 10% (Attendance, submission, etc.)



Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60
Important Events / Dates	Census date: 01/27/2025 First drop for non-payment: 01/21/2025 Exam date: Mid-term (March 13, 2025), Final Exam (Replaced by Project presentations) Last date to withdraw from one or more 15-week courses: 03/31/2025
Attendance / Makeup policy / other rules	Regular attendance is imperative if you want to do well in this course. Therefore, regular attendance is highly recommended. In case you have to miss a class, it is your responsibility to keep up with the class work and be informed of all announcements made in the class on HomeWorks, tests etc. No makeup exams will be authorized without providing an official document showing that your absence is in line with university rules.
Course Learning Objectives / ABET & PEOs Relation	By the end of this course, students will be able to: 1. Demonstrate an understanding of the fundamental concepts and general steps of the finite element analysis (FEA). (SO1) 2. Apply science and math concepts using FEA tools to identify, formulate and solve engineering problems. (SO1) 3. Apply FEA techniques to engineering design with broader considerations. (SO2) 4. Select and integrate FEA for the appropriate part in the design process to support and justify design decisions with broader considerations. (SO2)
Tentative Topics / Course Plans	1. Introduction to Finite Element Formulation approaches 2. Introduction to FE element types to design the desired physical model 3. Analysis of 1-D, 2-D, and 3-D problems using commercial software such as Ansys Workbench and/or SolidWorks Simulation 4. FEA Applications in real-world problems (Case Studies): solid mechanics, fluid, thermal, and modal analysis
University Policies	https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information.pdf

Note:

The instructor reserves the right to modify the syllabus at any time during the semester to accommodate unforeseen circumstances, enhance the learning experience, or ensure the course objectives are met. Any changes will be communicated promptly to all students.