**MEEN 4800 / 5800, Computer Aided Engineering**

**Instructor Contact:**
Instructor: Hyeonu Heo, Ph.D.  
Semester: Fall 2020
Office: F102G @DP  
Lecture Time: Sat. 12:30 – 3:20 pm (Zoom)
Email: Hyeonu.Heo@unt.edu  
Office Hours: Sat. 11:00 am – 12:20 pm (Zoom)

**Course Description:**
The course, Computer-Aided Engineering (CAE), introduces an engineering software tool, ANSYS Multiphysics, and techniques to aid in engineering analysis tasks. This course provides the necessary knowledge to use CAD/CAE tools and covers introductory and advanced topics of finite element analysis (FEA), computational fluid dynamics (CFD), topology optimization, etc.

Prerequisite: Mechanics (Mechanics of Materials, Fluids Mechanics, and Heat transfer)

Credits: 3 hours

**Course Objectives:**
By the end of this course, students will be able to:

1. Understand the procedure of FEA, CFD, and Thermal analysis
2. How to use the commercial software (ANSYS Multiphysics) to design structures and analyze engineering problem.
3. How to perform a linear static analysis
4. How to perform an incompressible fluid flow analysis

**Course Requirements:**
Required Textbook:

There is no textbook. The lecture materials will be uploaded on Canvas.

References:


**Method of Evaluation and Grading Procedure:**

1. Attendance 10 %
2. Homework assignments 20 %
3. Midterm project 30 %
4. Final report 30 %

**Total** 100 %

*Graduate students will have extra works.*

\[ A = 90 - 100\%; \quad B = 80 - 89\%; \quad C = 70 - 79\%; \quad D = 60 - 69\%; \quad F \leq 59\% \]
**Course Outline:**

1. Computer Aided Design (CAD) – SpaceClaim
2. Finite Element Analysis (FEA)
3. Computational Fluid Dynamics (CFD)
4. Special topics such as dynamic, non-linear, and heat transfer applications

**Course Evaluation:**

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course.

**Course Policies:**

Attendance Policy: Attendance is mandatory. Online lectures and discussions will contain vital information needed to conduct the midterm/final projects.

**COVID-19 Impact on Attendance**

While attendance is expected as outlined above, it is important for all of us to be mindful of the health and safety of everyone in our community, especially given concerns about COVID-19. Please contact me if you are unable to attend class because you are ill, or unable to attend class due to a related issue regarding COVID-19. It is important that you communicate with me prior to being absent so I may make a decision about accommodating your request to be excused from class.

If you are experiencing any symptoms of COVID-19 ([https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html](https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html)) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Hotline at 844-366-5892 or COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure. While attendance is an important part of succeeding in this class, your own health, and those of others in the community, is more important.

**Class Materials for Remote Instruction**

Students need access to a webcam and microphone to participate in fully remote portions of the class. Additional required classroom materials for remote learning include:

Students can access lab computers in F175 remotely to practice and conduct assignments and prepare the project reports during the lecture time. The instruction can be found on Canvas.

ANSYS Student 2020 R2 ([https://www.ansys.com/academic/free-student-products](https://www.ansys.com/academic/free-student-products))

Information on how to be successful in a remote learning environment can be found at https://online.unt.edu/learn.
UNT Policies:

Academic Integrity Policy

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one’s specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website (https://disability.unt.edu/).

Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Retention of Student Records

Student records pertaining to this course are maintained in a secure location by the instructor of record. All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student’s records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University’s policy. See UNT Policy 10.10, Records Management and Retention for additional information.

Additional Policies

Extra Help: PLEASE DO NOT WAIT UNTIL THE LAST MINUTE. If you are having trouble with this class, please send an email (Hyeonu.Heo@unt.edu).