Course Syllabus – Spring 2018
CE 4325: Fundamentals of Finite Element Method

Monday, Wednesday and Friday 10:00 am – 10:50 am @ WH 311

Instructor: Himan Hojat Jalali, Ph.D.

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Office Hours: Tuesday & Thursday 10:00 a.m.-11:30 a.m. @ ERB 123 and by appointment.

Teaching Assistant: Masoud Ghahremannejad,
Email: masoud.ghahremannejadmiane@mavs.uta.edu , Office hours: Tuesday 1:00 pm-4:00 pm.

Section Information: CE 4325-001, CE 4325-101.

Course Content: Stiffness method using basic equations and virtual work; element equations using shape functions for axial, beam, frame, two dimensional elements; stiffness method for three dimensional structures. Flexibility method; finite element modeling and optimization of idealized structures. Credit not granted for both CE 4325 and CE 5303.

Student Learning Outcomes:
Identify, formulate, and solve engineering problems incorporating the physical principles presented and present the problem solutions in a standardized form.

Requirements: Grade of C or better in CE 3341.

Required Textbooks: A First Course in the Finite Element Method, 6th Edition; Daryl L. Logan; Cengage Learning; ISBN-13: 9781305637344.

Other references:
1- Matrix and finite element displacement analysis of structures; D. J. Dawe; Clarendon Press, 1984; ISBN-13: 9780198562115 and 9780198562139.
2-Finite element procedures, 2nd Edition; Klaus-Jürgen Bathe; Prentice-Hall, Inc.; ISBN-13: 9780979004957.

Homework: A number of relevant homework problems will be assigned on blackboard or given in class at the end of lecture, which are to be solved in one week period or by the specified due date.

Homework will be collected before the class starts on the due date. Late homework will NOT be accepted unless arrangement has been made in advance with the instructor. Draw a box around the final answer(s). Staple the papers together at upper left corner. Write your full name and student ID, course number along with assignment number, date and page number (e.g. 1/5) on the subsequent adjacent upper boxes, respectively. DO NOT WRITE ON THE BACK OF THE PAGE.

Important: All course material will be uploaded on **blackboard**. It is the responsibility of the student to check the course website on blackboard on a regular basis to keep up with the course.
Assignments are uploaded on blackboard or specified in class. **The in-class students must provide a hard copy for the assignments before the class starts**. **Online students should submit their assignments online through blackboard as a SINGLE PDF file in the designated area before the class starts.**

Make-up Examinations: Makeup examinations are not given. If an examination is missed as a result of an illness or because of a University Authorized Absence, the weight of the missed examination will be added to the weight of the final examination when the class grade is determined. It is the responsibility of the student to provide acceptable, written documentation for absences that occur on the day of an examination. http://wweb.uta.edu/catalog/content/general/academic_regulations.aspx#5 in the UTA catalog at discusses University Authorized Absence. If arrangements are made well in advance, an examination can usually be taken before the scheduled time and a more lenient excuse policy is applied.

Attendance: At the University of Texas at Arlington, attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this course, I have decided that attendance at class meetings is not required but strongly encouraged.

Grading Policy:

	Weighting of grades		Final grades
Homework	20%		A 90 - 100 %
Midterm I	25%	(21 Feb. 2018)	B 80 - 89%
Midterm II	25%	(6 April 2018)	C 70 - 79%
Final exam (non-comprehensive)	30%	(University Schedule)	D 60 - 69%
Total weight	100 %		< 59% F

For online students: Please follow the link below for exam related policies.
https://www.uta.edu/engineering/future-students/engineering-online/testing-information.php

IMPORTANT: Videos of the lecture are available through Echo360 via Blackboard.

Tentative Course Schedule:
As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.–Himan Hojat Jalali

Topics covered	Timetable
Introduction Stiffness Method Axial (Truss Elements)	16 January-19 February
Beams Elements Frame and Grid Formulation Plane Stress and Plane Strain Equations	21 February-30 March
Linear-Strain Triangle Elements Axisymmetric Elements Isoparametric Elements Three-Dimensional Stress Analysis Plate Bending Elements	02 April-04 May

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially

withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA), and Section 504 of the Rehabilitation Act. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:
The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: *The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.*

Title IX Policy: The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

Academic Integrity: Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.
I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at https://www.uta.edu/conduct/.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations

the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php.

The IDEAS Center (2nd Floor of Central Library) offers **free** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey: At the end of each term, students enrolled in classes categorized as "lecture," "seminar," or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

Grade Grievance Policy: Grade grievances will be handled according to the policy described in the College of Engineering portion of the Catalog.

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