CE 5303
INTRODUCTION TO FINITE ELEMENT
Department of Civil Engineering
Fall – 2013

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Office Hours: *Tue, Th. (4-5 pm)*

Section Information: CE 5303-001 10:00 – 10:50 MWF

Location of Class Meetings: Room 203 Nedderman Hall

COURSE OUTLINE

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. Prerequisite: Grade of C or better in CE 3341.

REFERENCE BOOKS

1. Finite Element Procedures, *By Klaus-Jurgen Bathe, Prentice Hall Publishing*
2. A First Course in the Finite Element Method, *by L.Logan, CL Engineering*

ASSIGNMENTS AND EXAMINATIONS

HOMEWORK will be assigned on a regular basis during the class time. Complete assignments must be turned in electronically in PDF format by the due date at https://elearn.uta.edu. Some assignments may require the use of software which will be available on campus and can be used outside the class time.

Late homework will not be accepted except for medical or other similar hardships where (1) advanced arrangements are made with the instructor and (2) valid, written documentation is presented. In case of non-elective medical or other emergencies, valid, written documentation is required immediately upon return to school so that the homework

may be submitted as close to the original date as possible. A student may have no more than two (2) homework assignments excused in this manner; additional missed homework assignments will result in a grade of zero. Other than circumstances described above, failure to turn in homework assignments at the scheduled time will constitute a grade of zero on the assignment.

EXAMS will be held during class time according to the schedule which is to be determined during the semester. Tentative dates are indicated in "Grading" section of this syllabus. Distance education students must be present in class when the examination is conducted. No make-up exams will be given.

ATTENDANCE

Attendance for on-campus students is mandatory. Students are encouraged to participate in class discussions.

GRADING

Test 1	100 Points	(October 18, 2013)
Test 2	100 Points	(November 22, 2013)
Final	200 Points	(University Schedule)
Assignments	100 Points	
Total = 500 Points		

OTHER

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. Contact the Financial Aid Office for more information.

Americans with Disabilities Act: The University of Texas at 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)*. 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 that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

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. "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts."

Student Support Services Available: The University of Texas at 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. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit www.uta.edu/resources for more information.

Electronic Communication Policy: The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication 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. ***Students are responsible for checking their MavMail regularly.*** There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

To obtain your NetID or for logon assistance, visit https://webapps.uta.edu/oit/selfservice/. If you are unable to resolve your issue from the Self-Service website, contact the Helpdesk at helpdesk@uta.edu.

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 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 university class days prior to the first day of final examinations is 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; 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 make up tests. 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.

Librarian to Contact: Sylvia George-Williams, Science and Engineering Library (Basement, Nedderman Hall)

Course Schedule:

Topics covered	***Timetable***
• Introduction • Axial elements • Beams and planar frames • Three-dimensional frames	August 22 – October 16
• Two and three dimensional continuum displacement finite elements • Hybrid elements • Numerical solution techniques for static and dynamic problems	October 22 – December 10

Note: Instructor for this course reserves the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.