Department of Civil Engineering
University of Texas at Arlington

CE 5308/4360 Structural Masonry Design
Course Syllabus
Fall 2016

Instructor: Raad Azzawi,Ph.D,P.E/STR
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Office Hours: TuTh 12:00 pm – 2:00 pm
(Quastions via email or by appointment)
Lecture: TuTh 5:30pm – 6:50 pm
GACB103

Prerequisite: CE 3341 with a grade of C or better and Civil Engineering-BSCE academic plan.

Required Textbook:
Masonry Structural Design, by Richard E. Klingler, 2010.

Building Code Requirements for Masonry Structures:
(TMS 402-13 / ACI 530-13 / ASCE 5-13) and Specification for Masonry Structures (TMS 602-13 / ACI 530.1-13 / ASCE 6-13)

Reference
Masonry Designers' Guide, The Masonry Society, Colorado, 2013.

Course General Content:
Covers masonry unit type and grades of mortar types, reinforcing and connectors. Design of beams, columns, pilasters, and walls. Structural behavior and construction practices. Includes plain and reinforced masonry. Building codes, Masonry Standard Joint Committee (MSJC) specifications, material specifications, test methods, and recommended practice documents. Credit not granted for both CE 4360 and CE 5308. Prerequisite: Grade of C or better in CE 3341.

Tentative Course Outline:

Day	Date	Syllabus
Thursday	Aug 25	Masonry Structures -Introduction
Tuesday	Aug 30	Introduction
Thursday	Sep 01	Mortars and Masonry units
Tuesday	Sep 06	Mortars and Masonry units
Thursday	Sep 08	Bond Patterns in Masonry Walls
Tuesday	Sep 13	Unit size and shapes of clay masonry
Thursday	Sep 15	Unit size and shapes of clay masonry
Tuesday	Sep 20	Concrete Masonry Units—Manufacturing and Specification
Thursday	Sep 22	Construction of CMU, Grout and Natural stone
Tuesday	Sep 27	Masonry Compressive strength, density, ,modulus of elasticity, bond strength absorption, durability, mortar grout and steel bars

Thursday	Sep 29	Masonry Compressive strength, density, ,modulus of elasticity, bond strength absorption, durability, mortar grout and steel bar
Tuesday	Oct 04	Masonry Walls design methods
Thursday	Oct 06	ASD Wall Design (Flexure -Unreinforced)
Tuesday	Oct 11	SD Wall Design (Flexure -Unreinforced)
Thursday	Oct 13	ASD Wall Design (Flexure -Reinforced)
Tuesday	Oct 18	ASD Wall Design (Axial compression and Flexure -Unreinforced)
Thursday	Oct 20	SD Wall Design (Axial compression and Flexure -Unreinforced
Tuesday	Oct 25	ASD Wall Design (Axial compression and Flexure -Reinforced)
Thursday	Oct 27	SD Wall Design (Axial compression and Flexure -Reinforced
Tuesday	Nov 01	**Midterm Exam**
Thursday	Nov 03	ASD Wall Shear Design
Tuesday	Nov 08	Masonry Columns Design
Thursday	Nov 10	Masonry Columns Design
Tuesday	Nov 15	Masonry Columns Design
Thursday	Nov 17	Masonry Columns Design
Tuesday	Nov 22	Masonry Columns Design
Thursday	Nov 24	**Thanksgiving Holidays**
Tuesday	Nov 29	Masonry Columns Design
Thursday	Dec 01	**Term Project Presentation**
Tuesday	Dec 06	**Term Project Presentation**
Tuesday	Dec 13	**Final Exam**

- 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. Dr.Raad Azzawi

Student Learning Outcomes:
This course will focus on the following student educational outcomes:
An ability to apply knowledge of mathematics, science, and engineering TI
An ability to design a system, component, or process to meet desired needs TI
An ability to identify, formulate and solve engineering problems TI
An understanding of professional and ethical responsibility CI
The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context CI
A recognition of the need for, and an ability to engage in life-long learning CI
A knowledge of contemporary issues CI
An ability to use the techniques, skills and modern engineering tools necessary for engineering practice TI

Covered Implicitly ($\mathbf{C_I}$): The outcome is implicitly covered
Covered Explicitly ($\mathbf{C_E}$): The outcome is explicitly covered
Tested Implicitly ($\mathbf{T_I}$): The outcome is covered and implicitly assessed for by one or more means (assignments, test questions, essay questions, presentation evaluations, lab reports, etc.)

Homework:
A number of relevant homework problems, grouped into one or more problem sets will be assigned on the class website or given in class at the end of lecture.

Assignments will be collected in class at the beginning of a lecture in hard copy. Late Homework will NOT be accepted unless arrangement has been made in advance with the instructor. Homework are suggested to be in a standard format. This includes: (a) statement of the problem (with a sketch); (b) quantities with given values; (c) quantities to be found; and (d) solution of the problem.
Work MUST be done in pencil and must be neat and readable. Draw a box around the answer(s). DO NOT WRITE IN THE BACK OF THE PAGE.

Make-up Exams Policy:
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.
Make-up Classes:
Will be announced later.

Grading:

Exam	Weighting of grades
Assignments	10%
Term Project	10%
Midterm Exam	40%
Final exam	40%
Total weight	100 %

Final grades

A 90 - 100 %
B 80 - 89.99 %
C 70 - 79.99 %
D 60 - 69.99 %
< 59.99 % F

Attendance: Required

Class Participation

Class participation can be achieved in two ways. I shall ask you questions in class on the previous lectures, and on the material currently being discussed. You should be prepared to answer these questions, and should also participate by asking questions, suggesting ideas, and performing in-class group activities that I assign. I prefer an interactive class-room where the instructor and the students freely participate in active learning. Of course, you cannot participate in class unless you attend it! DE students are exempt from class participation.

Group Work

You must work in groups of three (if possible) for the following activities: homework, class projects and term project. The groups should represent diversity in terms of student background and academic performance. You should participate in all group activities and make a fair contribution to the group effort. DE students are exempt from group participation, unless they specifically request it.

Term Project

A group term project is required as a part of this class. The topic will be practice oriented, will require code usage, latest design software and drafting applications. The instructor will supply the class with the project concept during the second week of classes. A written proposal oral final presentation and written final report are required. The project grade will be determined as follows:

Proposal:	30%
Oral presentation:	30%
Final report:	40%

You must be able to understand, explain and execute your group project work. About half of the group project grade will be based on group activities, and the other half based on your individual contribution. Therefore, when asked, you should be able to explain and clearly identify your own contribution. DE students are exempt from group participation in the term project, unless they specifically request it.

Policies:

In general, the class will be conducted in accordance with the policies given below. However, it is impossible to anticipate every possible circumstance. The instructor reserves the right to modify the given policies or to deviate from them in unforeseen or unusual circumstances. If there is a policy that you anticipate will affect you in a way that seems unfair, please bring it to the attention of the instructor before the end of the second week of class. After that, the reason for a student initiated change in policy must be compelling.

Dropping the Course:

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. For Engineering students, added classes must be on the list approved by the academic advisor. 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.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. According to the UT System Regents' Rule 50101, §2.2, "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."

The College of Engineering has a "Statement on Ethics, Professionalism, and Conduct for Engineering Students" which may be downloaded from www.uta.edu/engineering/coees.doc. Each student is responsible for understanding and acting in accordance with this document.

Grade Grievances: The university policy regarding "Student Grievance Procedures Related to Grades" is explained in item 6 at http://wweb.uta.edu/catalog/content/general/academic_regulations.aspx#10.

Electronic Communication Policy:
The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account**. Students are responsible for checking their MavMail regularly**. Information about activating and using MavMail is available at http://www.uta.edu/oit/email/. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

Student Support Services Available:
The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

Librarian to Contact: Sylvia George-Williams, sylvia@uta.edu, Science & Engineering Librarian.

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.

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, which is located at the end of the hallway. 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.