University of Texas, Arlington

Department of Civil Engineering

**CE 3341 - STRUCTURAL ANALYSIS**

Spring 2014

**Instructor**: Yeonho Park Ph.D.

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**Faculty Profile:** https://www.uta.edu/mentis/public/#profile/profile/edit/id/3686

**Lectures: Spring 2014; Tuesdays and Thursdays, 12:30 PM-1:50 PM, NH 203**

**Office Hrs**:

* Tuesdays and Thursdays, 10:30AM- Noon.
* Questions via e-mail
* Or by appointment

**Course Content**: This course will provide students with the principles and methods of structural analysis, emphasizing the logical reasoning process of analysis, synthesis, and design. In order to provide for the students insight and understanding of structural behavior and analysis tools.

**Student Learning 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 TE
* An understanding of professional and ethical responsibility CI
* An ability to communicate effectively 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 (****CI****): The outcome is implicitly covered*

*Covered Explicitly (****CE****): The outcome is explicitly covered*

*Tested Implicitly (****TI****): The outcome is covered and implicitly assessed for by one or more means (assignments, test questions,*

*essay questions, presentation evaluations, lab reports, etc.)*

**Techniques, Skills and Modern Engineering Tools Used in this Course :**  RISA-3D or SAP of structural analysis programs will be used in order to analyze the several types of structures such as indeterminate structures( Truss and frames )

**Requirement:** *Admission to CE Professional Programs; CE2313 with a grade of C or better or special permission from the Chair.*

**Required Textbooks:** *Fundamentals of Structural Analysis, Kenneth M. Leet, Chia-Ming Uang, 4th Edition (ISBN: 0072973153)*

**Major assignments and examinations:** Weekly homework assignments, two in-class mid-term exams and a final exam. All homework assignments must be turned in at the start of the class or, if submitted electronically, prior to the class period in which they are due. Failure to do so will constitute a grade of zero for the homework assignment in question. **No late homework will be accepted under any circumstance.** One week of advanced notice will be provided in scheduling the in-class mid-term exams. The final exam will be given according to the university’s published final exams schedule. Note that failure to appear for an exam at the scheduled time will constitute a grade of zero in that exam.

**Grading Policy:**

**Homework (10%), two Mid-term exams (25% -each) and Final (40%).**

Final grades have the following guaranteed scale:

A ≥ 89.5

B 79.5 – 89.4

C 69.5 – 79.4

D 60.0 – 69.4

F < 60.0

(For this course, 59.99 and below is not considered 60. The same criterion applies for the other averages). These are the guaranteed cutoff percentages for the grades. Actual cutoffs may be lower, but that will be to the discretion of the instructor.

**Attendance Policy:** Attendance is not mandatory. No special accommodations will be made for incomplete or missed assignment and exams due to unexcused absences. In addition, lecture notes are the responsibility of the student and will not be provided for missed lectures.

**Drop Policy:** Please see university drop policy and deadlines. **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/>).

**Americans with Disabilities Act:** The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act* (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

**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.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, and submission for credit of any work 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.” (Regents’ Rules and Regulations, Series 50101, Section 2.2)

**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.

**Final Review Week**: A period of five class days prior to the first day of final examinations is designated as Final Review Week. During the week, no new assignments will be given; however, previously assigned work may have a completion date during this week. In addition, no portion of the final examination shall be administered during the Final Review Week. Classes are held as scheduled during this week and materials covered in lectures during this week may be included in the final examination.

**E-Culture Policy**: The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email. All students are assigned an email account and information about activating and using it is available at [www.uta.edu/email](http://www.uta.edu/email). New students (first semester at UTA) are able to activate their email account 24 hours after registering for course. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly

**Make-up Exam Policy:** No make-up exams are given except for medical or other similar hardships where advanced arrangements are made with the instructor; or in case of non-selective medical emergencies with appropriate physician’s note or documentation. Other than circumstances described above, failure to take the exam at the scheduled time will constitute a grade of zero in the exam.

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

**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 [ left to the front doors]. 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.

**Tentative Course Outline**:

1. Introduction, Structural Analysis/Design Process, Structural Forms, and Basic Structural Elements (2 Lectures)
2. Loads, Reactions, Supports, Structural Idealization, and Free-Body Diagram (2 Lectures)
3. Statical Determinacy/Indeterminacy, Stability (2 Lectures)
4. Statically Determinate Trusses (2 Lectures)
5. Statically Determinate Beams and Frames (2 Lectures)
6. Shear and Moment Diagrams, Deflected Shape (4 Lectures)
7. Moving Loads, Influence Lines (3 Lectures)
8. Calculation of Deflections (3 Lectures)
9. Analysis of Statically Indeterminate Beams, Truss, Frames, and Composite Structures; Slope-deflection Method and /or Moment Distribution Method (6 Lectures)

**Tentative Course Schedule**:

**Feb-27-2014 (Thursday) : 1st Mid-term Exam (Tentative)**

**Apr-10-2014 (Thursday): 2nd Mid-term Exam (Tentative)**

**May-8-2014 (Thursday) - Final exam (Fixed)**

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