CONE 412 Structural Analysis & Design (Fall 2012)

: Functions of structure, design loads, reactions and force systems; analysis of statically determinate structures including beams, trusses and arches; energy methods of determining deflections of structures; influence lines and criteria for moving loads; analysis of statically indeterminate structures including continuous beams and frames. (Prerequisite: CONE 221 and CONE 331)

Instructor: Ilseok “Eddie” Oh, Ph.D., Associate Professor, Construction Engineering
AGIT-209, Texas A&M University – Commerce
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Office Hour: (M & W) 10am – Noon (T & R) 11am – Noon

Lecture/Lab: (T & R) 09:30 – 10:45 am, AGIT 211


Learning Outcomes:

Upon satisfactory completion of the course, the student will be able to:
- Understand and determine different types of loads considered in the design of structures
- Construct and apply Influence Lines to Structural Analysis & Design
- Determine forces and deflections of structures
- Perform analysis on statically determinate structures
- Perform analysis on statically indeterminate structures

Course Policies:

- Course Requirements and Grades
  Attendance & Participation 10%
  Assignment & Quizzes 20%
  Exam I 20%
  Exam II 20%
  Exam III 30%

- Grading

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- Class Attendance Requirement (two lateness = one absence)

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• All assignments should be submitted at the beginning of the class and the due date is “next” class meeting time. Only selected HWs will be graded. Unless prior arrangements are worked out with the instructor, a penalty of 50% will be assessed on late assignments submitted within next class meeting time of the due date. After the grace period, ZERO credit towards a final grade.

• Academic Dishonesty: Texas A&M University-Commerce will not condone plagiarism in any form. Plagiarism represents disregard for academic standards and is strictly against University policy. Plagiarized work can result in a “0” on a given assignment(s) or an “F” for the course as well as further administrative sanctions permitted under University policy. You may discuss course work and other course materials with fellow students (except during tests), but it is inappropriate to have another student do your course work or provide you with any portion of it. Guidelines for properly quoting someone else’s writings and the proper citing of sources can be found in the APA Publication Manual. If you do not understand the term “plagiarism”, or if you have difficulty summarizing or documenting sources, contact your professor for assistance.

• ADA Statement: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact the Office of Student Disability Resources and Services (Gee Library 132, 903-886-5150, StudentDisabilityServices@tamuc.edu)

• Student Conduct: All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Code of Student Conduct from Student Guide Handbook). Students are expected to attend all class periods and to be prepared for each class. Students are expected to refrain from any disruptive behaviors during class, which includes but is not limited to working on assignments/projects from another course, reading non-course materials, or using the computer for non-class purposes. Cell phones, iPods, and other electronic devices should be turned off during class.

Class Topics:

• Types of Structures and Loads (1)
• Analysis of Statically Determinate Structures (2)
• Analysis of Statically Determinate Trusses (2)
• Internal Loadings Developed in Structural Members (2)
• Cables and Arches (1)
• Influence Lines for Statically Determinate Structures (2)
• Approximate Analysis of Statically Indeterminate Structures (2)
• Deflections (2)
• Deflections using Energy Methods (2)
• Analysis of Statically Indeterminate Structures by the Force Method (2)
• Displacement Method of Analysis: Slope-Deflection Equations (2)
• Displacement Method of Analysis: Moment Distribution (2)
• Beams and Frames Having Non-prismatic Members (2)
• Truss Analysis Using the Stiffness Method (1)
• Beam Analysis Using the Stiffness Method (1)
• Plane Frame Analysis Using the Stiffness Method (1)