



### CONE 412 Structural Analysis & Design (Fall 2014)

: 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 331)

**Instructor:** Ilseok “Eddie” Oh, Ph.D., Associate Professor, Construction Engineering  
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**Office Hour:** Monday ~ Friday 11:00am – Noon

**Lecture/Lab:** (T & R) 09:30 – 10:45 am, AGIT 126

**Required Text:** Structural Analysis, R.C. Hibbeler, 8<sup>th</sup> Ed., Prentice Hall  
 ISBN-10: 013257053X, ISBN-13: 9780132570534

**Learning Outcomes:**

1. Understand and determine different types of loads considered in the design of structures
2. Construct and apply Influence Lines to Structural Analysis & Design
3. Determine forces and deflections of structures
4. Perform analysis on statically determinate structures
5. Perform analysis on statically indeterminate structures
6. Demonstrate the competency to utilize software in structural engineering

**Course Policies:**

- Course Requirements and Grades

Attendance & Participation	10%	Assignment & Quizzes	20%
Exam I	20%	Exam II	20%
Exam III	30%		

- Grading

A	B	C	D	F
100 - 90	89 - 80	79 - 70	69 - 60	59 - 0

- Class Attendance Requirement (two *lateness* = one *absence*)

# of Absence	0 – 3	4	5
Point Deduction	0	- 5	- 10

- 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.

### **Students with Disabilities**

: 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: Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library Room 132, Phone (903) 886-5150 or (903) 886-5835, Fax (903) 468-8148, 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 & Schedule:**

<b>Week #</b>	<b>Week of</b>	<b>T</b>	<b>R</b>
1	25-Aug	Structures and Loads	Structures and Loads
2	1-Sep	Structural Analysis of Statically Determinate Structures	Structural Analysis of Statically Determinate Structures
3	8-Sep	Structural Analysis of Statically Determinate Trusses	Structural Analysis of Statically Determinate Trusses
4	15-Sep	Internal Loadings	Internal Loadings
5	22-Sep	Cables and Arches	Cables and Arches
6	29-Sep	Influence Lines for Statically Determinate Structures	Influence Lines for Statically Determinate Structures
7	6-Oct	Exam I	Review Exam I
8	13-Oct	Approximate Analysis of Statically Indeterminate Structures	Approximate Analysis of Statically Indeterminate Structures
9	20-Oct	Deflections	Deflections
10	27-Oct	Deflections Using Energy Methods	Deflections Using Energy Methods
11	3-Nov	Analysis of Statically Indeterminate Structures by the Force Method	Analysis of Statically Indeterminate Structures by the Force Method
12	10-Nov	Displacement Method of Analysis : Slope-Deflection Equations	Displacement Method of Analysis : Slope-Deflection Equations
13	17-Nov	Displacement Method of Analysis : Moment Distribution	Displacement Method of Analysis : Moment Distribution
14	24-Nov	Exam II	TGB
15	1-Dec	Stiffness Method	Stiffness Method
16	8-Dec	Final Week - Exam III	