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CIVE 566: Intermediate Structural Analysis (FA 16)

T TH 11:00AM-12:15 PM Natural Resources 112(August 22-Dec 11)

Instructor:
Dr. Suren Chen, P.E., Associate Professor
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Office hour: T TH 10:00-11:00AM or by appointment @ A205E Engineering Blvd. For appointment, please email with suggested time. I will respond as soon as possible.

Textbook:
Kassimali, Matrix Analysis of Structures, 2nd Edition, Cengage Learning.
(Optional text) Leet, K.M. and Uang, C.M., *Fundamentals of Structural Analysis*, 4th Edition (or other recent version), McGraw Hill: Boston, 2010.
Other material will be made available via Canvas or by reference to other websites.
http://info.canvas.colostate.edu/login.aspx

Course prerequisite
CE 367 or similar fundamental structural analysis course

Objective:
This class is to prepare students with essential background and knowledge to analyze common determinant and intermediate structures, such as beams, frames, trusses, cables and arches with advanced structural analysis tools. The basics of matrix analysis and finite element applications will be introduced which will enable students to continue future studies and research on structural engineering.

Assignments & homework:
It is estimated that there will be about 10-12 homework throughout the semester. **No late homework will be accepted after the due time** except for the reasons acceptable according to the university policy. These reasons typically include: university business duty causing direct time conflicts, serious health condition or family emergency (all with written proof or statement), etc.

Grade:

Homework & assignments	25%
Two mid-term exams	50%
Final project	25%

A=90-100
B=80-89
C=70-80
D=60-69

F=<60
Plus and minus grades may be used.

Makeup exam policy:

1. For people who cannot attend regular exams due to university business duty, serious health condition or family emergency (all with written proof or statement), a makeup exam may be arranged AFTER the regular exam. All requests should be made at least 3 days before the exam except for emergencies. NO exception will be made without a legitimate reason and a timely arrangement.

Academic integrity:

The course will adhere to the Academic Integrity Policy of the Colorado State University General Catalog (Page 7) and the Student Conduct Code. University rules including academic penalty and further investigation by the university authorities will be **strictly enforced** in this course. You are encouraged to work with others, but you should fully understand the work you turned in and are sure any work you have turned in is your **own**.

Usually only the textbook and notes (including handouts) are allowed to be used to finish your homework. Any use of solution books or old homework/exams from previous years in the homework or exams is strictly prohibited and will be regarded as cheating.

Computer and online access:

Computer lab access is required for this class in order to use some software. Please make necessary arrangements to access the lab as soon as possible.

Software options (no preference from the instructor):

1. SAP2000. https://wiki.csiamerica.com/display/tutorials/SAP2000
2. Mastan. http://www.mastan2.com
3. Textbook program: www.cengage.com
4. Any other advanced structural analysis software either with public/free access or CSU-owned license.

Software like MATLAB and Mathcad can be used in HWs to solve complex matrix problems, with input and output of commands clearly listed.

Topics and approximate schedule (subject to adjustment)**:**

Week	Topics covered
1-2	Syllabus and course introduction; review of basics of structural analysis.
2-3	Analysis of cables
3-4	Analysis of arches
5-6	Direct stiffness method basics
7	Matrix algebra
8-10	Plane truss analysis
10-12	Beams
12-14	Frames
14-15	Project report due and presentation