CVET-332-01   Structural Analysis with STAAD
Fall 2017-2018

Instructor: **Dr. Amanda Bao, P.E.**

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Lecture: **M, T, W, R: 11:15am-12:10pm, Room GLE-2149**
STAAD Lab: **DDL Lab (ENT-2165)**

Office Hours: **Mon: 12:30-1:30pm; Wed: 10:00-11:00am; Thu: 1:00-2:00pm**

Grader and TA: Nadezhda (Nadya) Levitova, Email: nl6397@rit.edu

Text:

Hibbeler, R. C. "Structural Analysis", **9th Edition**, Pearson, 2015.

Prerequisites:

CVET-220 Strength of Materials or equivalent course

Intended Learning Outcomes:

After completing this course, you will be able to:

1. Analyze statically determinate structures including beams, trusses, cables and arches, calculate the shear force, bending moment and axial force in the structural members, and determine the support reactions.
2. Analyze statically indeterminate structures using approximate methods.
3. Use commercially available software (e.g. STAAD-Pro) for the analysis of structural systems under gravity and lateral loads.
4. Interpret and verify the results of computer-aided analysis using approximate and "exact" hand calculation methods.

Course Outline:

1. Introduction and Analysis of statically determinate beams and frames (with computer-aided analysis)   (7 lectures)
2. Analysis of statically determinate trusses (with computer-aided analysis)   (4 lectures)

3. Internal forces developed in structural members (with computer-aided analysis) (5 lectures)
4. Cables and arches (6 lectures)
5. Influence lines and moving loads (with computer-aided analysis)   (12 lectures)
6. Approximate methods for statically indeterminate structures (with computer-aided analysis) (10 lectures)
7. Moment distribution (with computer-aided analysis) (9 lectures)
8. Tests (3 lectures)

Course Web Site, Online Discussions, and E-mail:

The course web site at http://mycourses.rit.edu will mainly be used to post handouts, homework and test information. Screencasts are available on the web site: http://baoteachingcet.com. (Screencasts Access: **Username: test**, **Password: 1234**) Some announcements relating to this course may be sent to you via e-mail.

Conduct in Lectures:

Please be on time and conduct yourself in a respectful and professional manner in class. Students will refrain from wearing headphones, earpieces, or other audio devices during class. Laptops can only be used during class for note-taking purposes. Cell phones, pagers, texting devices, I-pods, etc. should be set to silent mode.

Homework Assignments:

Homework assignment will be posted on the course website at http://mycourses.rit.edu.

- ✓ **Homework problems are due by 4pm on the assigned due date**. **No late homework will be accepted or graded.**

- ✓ Calculations should be neat and organized. Sketches, assumptions, units, and references must be included, where appropriate. Show all works in details. Use Engineering paper only, write on one side and box your solutions. All numerical values shall include the appropriate units. Points will be deducted from the assignment grade if this format is not followed.

- ✓ No point will be given for work that has been copied from other students or resources.

- ✓ Assignments will be graded and handed back within one week.

- ✓ Solutions to the homework assignments will be posted in the display case outside CETEMS office.

Homework Assignments Schedule:

Homework #	Handout Date	Due date	Content
1	Thu. 8/31	Mon. 9/11	Beam Analysis, STAAD
2	Mon. 9/11	Mon. 9/18	Frame Analysis, STAAD
3	Mon. 9/18	Tue. 9/26	Trusses, STAAD
4	Tue. 9/26	Tue. 10/3	Shear and Moment Diagrams
5	Tue. 10/3	Thu. 10/12	Shear and Moment Diagrams, STAAD
6	Thu. 10/12	Thu. 10/19	Cables & Arches
7	Thu. 10/19	Tue. 10/31	Influence Lines
8	Tue. 10/31	Thu. 11/9	Influence Lines, STAAD
9	Thu. 11/9	Thu. 11/30	Approximate Methods, STAAD
10	Thu. 11/30	Mon. 12/11	Moment Distribution, STAAD

Computer Usage:

Some of the homework assignments will involve the use of the STAAD Pro structural analysis software. The software is available in all the computers in the DDL lab located in Room ENT-2165.

Access to DDL Lab:

Access to the lab will be by card swipe. **YOU must request access through the following link:** https://apps.rit.edu/cast/labs/lab_access/index.php
Chris Brown (cjbsps@rit.edu) will be the point of contact for any issues with accessing the lab.

Exams:

There will be **three 55-minute tests and a final exam** in this course, and all exams are open book and open notes. No make-up tests will be given except in **very extenuating** circumstances and only if the instructor is given prior notice. **All tests will not be returned** but you are welcome to look through your graded test booklet in my office.

Exams Schedule:

Exam #	Date	Covers HW #
1	Thursday, 9/28/17	1, 2, 3
2	Thursday, 10/26/17	4, 5, 6
3	Tuesday, 11/21/17	7, 8
Final Exam	Finals week	All

Grade Distribution:

Homework	= 20%
Three 55-minute tests @ 15% each	= 45%
In-class STAAD Quiz	= 5%
2-hour Final Exam	= 30%

Letter Grades:

The letter grades in this course will be assigned as follows:

A	=	93-100
A-	=	90-92
B+	=	87-89
B	=	83-86
B-	=	80-82
C+	=	77-79
C	=	73-76
C-	=	70-72
D	=	60-69
F	=	Below 60