

CE 2343 Structural Analysis 25204

Spring 2021 Syllabus

*Note: the instructor reserves the right to modify the following information as deemed necessary.

Lecture Session: TR 9:00am – 10:20am via Zoom

Instructor: Joanne Moyer PhD

Email: jmmoyer@utep.edu

Online Office Hours: Zoom

Monday and Thursday 1:00pm – 2:00pm

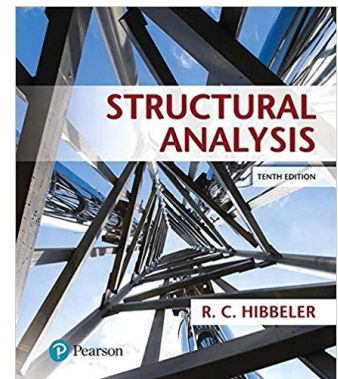
Or by appointment

Office Location: A-212 (availability in accordance with UTEP on-campus operations)

REQUIRED MATERIALS:

Textbook: Structural Analysis.
10th Edition by: R.C. Hibbeler, 2018
ISBN-10: 0-13-461067-9
ISBN-13: 978-0-13-461067-2

Assignments: Pearson: Mastering Engineering
Course Name: CE 2343 25204 Structural Analysis
Spring 2021
Course ID: moyer20895



<https://www.pearsonmylabandmastering.com/northamerica/masteringengineering/>

Technology: Webcam/Computer camera for online meetings and exams/quizzes required.
Respondus LockDown Browser (available through blackboard, instructions available in blackboard course page)

Calculator: Only NCEES approved calculators will be permitted, as these are what is allowed for the Fundamentals of Engineering exam. Visit the NCEES website (<http://ncees.org/exams/calculator/>) for more information. No phones. The following are a few of the suggested calculators:

- Hewlett Packard – HP 33S
- Casio – FX 115MS or FX 115MSPlus

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- Texas Instruments – TI 30X IIS
- Texas Instruments – TI 36X SOLAR

It is your responsibility to get acquainted with the features of the calculator you decide to use. I recommend that you use this calculator for all your work (including other courses) since this will help you learn how to use all the features of your calculator.

COURSE OBJECTIVES:

The objectives of CE 2343 are:

1. Identify structural form, components, applicable loads, and requisite analysis assumptions
2. Rapidly assess simple structures for stability and determinacy (review)
3. Apply mechanics principles to solve static equilibrium problems (review)
4. Solve for forces in statically determinate trusses (review)
5. Draw shear and moment diagrams for beams and frames (review)
6. Draw influence lines for reactions, forces, shears and moments
7. Determine internal forces in arches and cables
8. Estimate deflections in beams, frames, and trusses
9. Solve for simple statically indeterminate structures using classical methods
10. Develop an understanding of current structural engineering practice
11. Document structural calculations and understand the responsibility of an engineer
12. Use the internet as a resource to obtain information in support of structural analyses
13. Use and interpret results of structural analysis software

GRADING POLICY:

| | | |
|------------------------|--------------------|-----------------------------------|
| Grading Scheme: | Exams: | 300 points (100 points each exam) |
| | Final Exam: | 150 points |
| | Quizzes: | 100 points (25 points each quiz) |
| | Assignments: | 150 points |
| | Group Term Project | 200 points |
| | | Total 900 points |

| | |
|---------------------------|------------------|
| Grading Structure: | A \geq 90 |
| | 90 > B \geq 80 |
| | 80 > C \geq 70 |
| | 70 > D \geq 60 |
| | 60 > F |

WHAT SHOULD YOU EXPECT FROM ME AS THE INSTRUCTOR?

1. I will provide you with clear instructions on class expectations.
2. I will check my e-mail at least three times per week and will answer back to you as soon as possible.
3. I will leave myself open to suggestions about improvement of the class and class related activities.
4. I will do all I can to enhance your learning and success in this class.
5. If any changes in the course are to be implemented, I will ensure that the class is notified in a timely manner.

ATTENDANCE & CLASS PARTICIPATION:

- *Students are expected to attend all online lecture sessions, watch all videos, and read all course material assigned.*
- “Online Modules” will be provided for each Chapter and Sections, which include but not limited to: videos, lecture slides, readings, and assignments for the Chapters and Sections subject matter.
- Those who fail to complete the course material are inviting scholastic difficulty.

ASSIGNMENTS:

- *Assignment problems will be assigned via Pearson: Mastering Engineering.*
- *Written assignments may also be assigned during the semester.*
- *Assignments will be available after a subject has been covered. Assignments will be due within a week after availability.*
- Past experience clearly shows that a student's grade is strongly dependent upon the effort that is put into working and understanding the homework.
- **Late assignments will not be accepted. No exceptions!!**

QUIZZES:

Quizzes will be administered via blackboard. Respondus LockDown Browser (Webcam required) is required in order to take the quizzes through blackboard.

- **See tentative schedule for Quiz dates. Quizzes are offered at 10:00am (during class time) or 7pm MST. Each student will choose ONE quiz to complete.**
- Download Respondus LockDown Browser prior to the first online quiz. See Respondus LockDown Browser instructions for more information.
- Webcam/Computer Camera is required for the Respondus Lockdown Browser.
- I will send an email of quiz details at least a day before the quiz.
- Quizzes are closed book – closed notes. Be sure to prepare and be ready to take quizzes.
- **The lowest quiz grade will be dropped from your grades.**
- **Each student must submit their hand calculations showing their work within 15 minutes after quiz completion in order to receive credit. Failure to do so will result in a zero regardless if the answer is correct. No calculations, no credit!!**

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- **Late quizzes will not be accepted. No exceptions!!**
- **No makeup quizzes will be administered. No exceptions!!**

EXAMS:

Exams will be administered via blackboard. Respondus LockDown Browser (Webcam required) is required in order to take the exams on blackboard.

- Download Respondus LockDown Browser prior to the first online Exam. See Respondus LockDown Browser instructions for more information.
- Webcam/Computer Camera is required for the Respondus Lockdown Browser.
- Exams are closed book – closed notes. No cell phones allowed.
- **Each student must submit their hand calculations showing their work within 15 minutes after exam completion in order to receive credit. Failure to do so will result in a zero regardless if the answer is correct. No calculations, no credit!!**
- **No makeup exams will be administered. No exceptions!!**
- **See tentative schedule for Exam dates. The time for exams are at 9am or 7pm MST. Each student will choose ONE exam to complete.**

Three exams will be given. You must take the exams during the scheduled exam times. These dates are announced on the first week of class although the dates may be changed according to the progress of the class.

In accordance with University regulations, students who miss examinations will receive grades of zero.

Make sure that you do not have a cell phone or any other electronic item in your possession during the exams.

The mere possession of a disallowed calculator, any cell phone or any other electronic item on or near you during exams is the ground for receiving a grade of zero.

FINAL EXAM:

The final exam will be administered via blackboard. Respondus LockDown Browser (Webcam required) is required in order to take the final exam on blackboard.

- Download Respondus LockDown Browser. See Respondus LockDown Browser instructions for more information.
- Webcam/Computer Camera is required for the Respondus Lockdown Browser.
- Final Exam is closed book – closed notes. No cell phones allowed.
- **Each student must submit their hand calculations showing their work within 15 minutes after exam completion in order to receive credit. Failure to do so will result in a zero regardless if the answer is correct. No calculations, no credit!!**

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- **Students must take the final exam during the scheduled final exam time. No exceptions!!**
- Please see tentative schedule for Final Exam day and time.
- Final Exam is comprehensive.

COURSE PORTFOLIO:

Students are encouraged to prepare a course portfolio documenting all materials relevant to the course. The portfolio shall contain Power Point lecture notes, class notes, handouts, exams, homework assignments, study notes, and any relevant materials accumulated during the semester. I believe that you will benefit from the portfolio years later when you need to review the learned subjects for advanced courses or professional engineer licensure exam

PERSONS WITH DISABILITY:

UTEP seeks to provide reasonable accommodations for all qualified individuals with disabilities, including learning disabilities. This university will adhere to all applicable federal, state, and local laws, regulations and guidelines with respect to providing reasonable accommodations as required affording equal educational opportunity. It is the student's responsibility to register with Center for Accomodation and Support Services (CASS) in the East Union Bldg., Room 106 within the first two weeks of classes, and inform the faculty member to arrange for appropriate accommodations.

Center for Accomodation and Support Services (CASS) can also be reached in the following ways:

Web: <http://sa.utep.edu/cass/>

Monday thru Friday 8:00a.m.-5:00p.m.

Union Building East Room 106

Phone:(915) 747-5148

cass@utep.edu

POLICY ON CHEATING:

Students are expected to be above reproach in all scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the university. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit any work or 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. The Department of Civil Engineering has established the Honor Code because it has an obligation to the State and the public to prevent students from entering the profession who are not honest and trustworthy in their academic efforts. This Honor Code Policy allows the Department to recommend disciplinary action to the University Student Conduct Office and to remove students from the Department who have violated the Honor Code. This Honor Code is consistent with the *Student Conduct and Discipline* Chapter of the *Student Affairs* Section of the *Handbook of Operating Procedures* of the University of Texas at El Paso.

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Course tutoring/homework help sites, such as Chegg, are strictly prohibited for use on exams and quizzes.

All students should sign the Honor Code Agreement and submitted to the Civil Engineering office for record keeping and be deeply familiar with the Honor Code Policy published in our website: <http://ce.utep.edu/honorcode.htm>

TENTATIVE SCHEDULE:

NOTE: *Schedule may be modified to accommodate particular needs as the semester progresses.* It is to the students benefit that they read and study the chapters and sections as outlined in this calendar to reinforce the material that is presented in the class.

| Week | DATES | CLASS TOPICS | Group Project | Quizzes | Exams |
|--------------------------------------|----------------------------|---|---|--------------------------|--------------------------|
| 1 | Jan 19 - Jan 24 | Syllabus, Chapter 1 (Structural Loads) | | | |
| 2 | Jan 25 - Jan 31 | Chapter 2 (Statically Determinate Structures) | | | |
| 3 | Feb 1 - Feb 7 | Chapter 3 (Trusses) | Project group member names & topic due Friday Feb 5 | Quiz 1 Thursday Feb 4 | |
| 4 | Feb 8 - Feb 14 | Chapter 4 (Internal Loadings, Shear and Moment Diagrams) | | | |
| 5 | Feb 15 - Feb 21 | Chapter 4 (Internal Loadings, Shear and Moment Diagrams) | | | Exam 1 Thursday Feb 18 |
| 6 | Feb 22 - Feb 28 | Chapter 5 (Cables and Arches) | | | |
| 7 | March 1 - March 7 | Chapter 6 (Influence Lines) | | Quiz 2 Thursday March 4 | |
| 8 | March 8 - March 14 | Chapter 6 | Project report rough draft due Friday March 12 | | |
| 9 | March 15 - March 21 | Spring Break | | | |
| 10 | March 22 - March 28 | Chapter 7 (Deflections) | | Quiz 3 Thursday March 25 | |
| 11 | March 29 - April 4 | Chapter 7 | | | Exam 2 Thursday April 1 |
| 12 | April 5 - April 11 | Chapter 8 (Deflection Using Energy Methods) | | | |
| 13 | April 12 - April 18 | Chapter 8 | | Quiz 4 Thursday April 15 | |
| 14 | April 19 - April 25 | Chapter 9 (Force Method) | | Quiz 5 Thursday April 22 | |
| 15 | April 26 - May 2 | Chapter 10 (Slope Deflection Equations) | | | Exam 3 Thursday April 29 |
| 16 | May 3 - May 6 | Group Presentations Tuesday May 4 and Thursday May 6 | Group project report due Friday May 7 | | |
| Tuesday, May 11 | | | | | |
| Final Exam: 10:00am - 12:45pm | | | | | |

GROUP TERM PROJECT:

The group term project consists of submitting a research report and a group presentation via Zoom.

Structural engineers design and work with various structural elements, materials, and technology. To become more familiar with these various components, each group will choose a structural element to research. The following are some suggestions:

| | |
|---------------------------------|---|
| Bridges | Concrete Masonry Unit (CMU) |
| Steel | Foundations |
| Concrete | Tilt-Up Concrete |
| Skyscrapers | Pre-Stressed and Post-Stressed Concrete |
| Cold-Formed Steel (Metal Studs) | Concrete tilt-up Construction |
| BIM | Welding |
| Residential buildings | Shear Walls |
| Role of technology | Wood construction |
| AutoCAD | Joist Design |
| Trusses | |

You may also propose a structural topic.

Project Requirements:

- You may work alone, but must contact the instructor/TA by Feb 5 for approval along with your proposed topic. The project requirements for individuals are the same as for groups.
- Groups will consist of up to **four members** and email the instructor/TA of members names and proposed topic for approval before Feb 5.
- Each group will have a different topic.
- At the end of the semester, each team member will complete a peer evaluation on their fellow team members contribution towards the project. If a team member receives low remarks due to minimal contribution, their final project grade will be reduced in accordance with their evaluation.
- If a team member is not participating, inform the instructor/TA ASAP. The team member may be required to submit the final project individually.
- The reports will be subject to Safeassign plagiarism check. Reports that have higher than 25% plagiarism will not be considered and will result in a grade of zero.

Deliverables for the Project:

Report:

Report shall consist of a Title Page, Abstract, Introduction, Discussion, Conclusion, References. Concepts covered should include, but not limited to, the following:

- Role in engineering history
- Detailed explanation of topic

- Topics importance in engineering
- Types if applicable to the topic (example: various bridge types)
- How concepts discussed in class are applied or considered for the topic
- Relevancy today
- What engineers must consider when analyzing the element
- How the element is used
- Influence in engineering
- Cite all references!!
- You can use pictures and/or images in your report. Be sure to cite them.

If you have questions on the topic or need guidance, contact Dr Moyer to discuss.

One group member shall submit the report in one file via blackboard for the entire group.

PowerPoint Presentation via zoom:

The PowerPoint Presentation (10-15 minutes) shall consist of each group member presenting via Zoom on May 4 and May 6 to explain the topic.

- Please use appropriate font size to prepare slides.
- The text should be clearly visible
- Remember this is a final group presentation, so help each other to present as if you all are presenting in-person.

Deadlines:

Deadline to Obtain Term Project Topic Approval and Submit names of group members by Feb 5th.

Report Rough Draft Submission Due March 12th 11:59pm

Term Project Report Due: May 7th 11:59pm. Upload final report on blackboard.

Group Presentations May 4 and May 6 during class scheduled time.

Failure to meet the deadlines of any of the above will result in 20-point deduction for each day late from the overall term project grade. No exceptions!!

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Project Grading Rubric:

| | | | | |
|---------------------|---|------------------------|-------------------|-----------------|
| Team Members: | | | | |
| Report | | | | |
| | | Max Pts Allowed | Pts Earned | Comments |
| 1 | Penalties for late submissions | | | |
| 2 | Reports looks professional - title page, intro, etc., spelling, grammar, overall organization | 20 | | |
| 3 | Detailed explanation of topic | 20 | | |
| 4 | Discussion of types, relevancy today, influence in engineering, how is used etc. | 30 | | |
| 5 | Implement concepts from class | 30 | | |
| 6 | References: cited | 10 | | |
| Presentation | | | | |
| 7 | Professionally presented | 20 | | |
| 8 | Detailed explanation of topic | 30 | | |
| 9 | Discuss concepts from class | 20 | | |
| 10 | Peer evaluations | 20 | | |
| | Total Points | 200 | | |

FINAL COMMENT:

I wish you all the best in the course. Please do not hesitate to ask questions. **Any specific comments that students have on how the course might be improved are particularly welcome, especially during the semester.**