

**Textbook:** **Structural Analysis, 11<sup>th</sup> Edition**  
R. C. Hibbeler  
Mastering Engineering Course ID:  
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# STRUCTURAL ANALYSIS

Eleventh Edition



R. C. HIBBELER

## Catalog Description

A study of framed structures, trusses, girders, and beams including applications of static and moving loads on bridges.

**Prerequisites:** CE 2334 Mechanics of Materials with a C or better grade

## Course Objectives

At the end of the course students will have developed the skills to:

1. Calculate structural design loads (i.e. Dead, Live, Wind, etc.)
2. Calculate reactions on beams, trusses and frames.
3. Solve for internal forces in statically determinate trusses.
4. Draw shear and bending moment diagrams for beams and frames.
5. Solve for cable structure reactions and forces.
6. Draw influence lines for reactions, forces, shear and moments.
7. Calculate deflections in statically determinate structures.
8. Analyze simple statically indeterminate structures using classical methods.
9. Become proficient in the use commercial structural analysis software for the analysis of simple structural systems.

## Topics Covered

1. Structural Loads
2. Analysis of Statically Determinate Structures (Reactions)
3. Analysis of Statically Determinate Trusses
4. Internal Loadings Developed in Structural Members
5. Cables and Arches
6. Influence Lines for Statically Determinate Structures
7. Deflections
8. Deflections Using Energy Methods
9. Analysis of Statistically Indeterminate Structures by the Force Method
10. Displacement Method of Analysis: Slope Deflection Method

## Grades

Your grade for this course will be assessed based on your performance on the following:

Homework and Quizzes	(10%)
Mid-term exams	(50%)
Final comprehensive exam	(30%)
Final project	(10%)

All students must take the final exam and need to obtain a 50% or higher grade to pass the class.

The instructor reserves the right to revise this grading plan. However, students will be informed of any changes during the semester.

For students following the 2015-2016 or previous catalogs the passing grade is a D and for students following the 2016-2017 or newer catalog the passing grade is a C.

## Homework

Students are encouraged to solve all problems contained in the book. However, only assigned homework problems are due at the beginning of the first class of the following week. Late homework problems will not be accepted.

Start a problem with one new sheet. Use only one side of a sheet. Write down the course number, problem number, and student name on the top line of each sheet. Staple each set of homework problems. All problems should contain a free body diagram. Neatness is essential. Give necessary details in the solution so that people can easily follow your calculations.

## Attendance and Tardiness

Attendance is mandatory. Absence can be checked by the instructor through exams, quizzes, roll calling, randomly picked names for problem solving in class, or other mechanisms. You could receive an F grade if you miss more than three classes without the instructor's consent. The instructor appreciates all efforts to attend the class. Part of being a professional is being on time and being prepared to do your job. This applies to your career as a student as much as it does to your future career as an engineer. Coming to class late is unprofessional and is very disruptive to the class. It interferes with the instructor's presentation, but more important, it interferes with the other students' concentration. You are expected to be in class and prepared to participate when the class begins. If you are late to class, you are to come in quietly and take a seat in the back of the room. There will be no penalty for being late. However, all exams, and quizzes will be given at the beginning of the classes. No additional time will be allowed for late attendees.

## 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.

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>