

**CE1301 Fundamentals of Civil Engineering**  
**Lecture Sessions: TR 7:30-8:20 am**  
**Lab Sessions: MTWTR 8:30-10:30 am**  
**Undergraduate Learning Center, UGLC346**  
**Spring 2020**

**Instructor:** Reza Ashtiani, Ph.D. ([reza@utep.edu](mailto:reza@utep.edu))  
Engineering Annex. Room A-217  
**Office Hours:** Students are always welcome

**Teaching Assistant:** Mr. Edgar Rodriguez Velasquez  
**TA Email:** edrodriguezvelasquez@miners.utep.edu

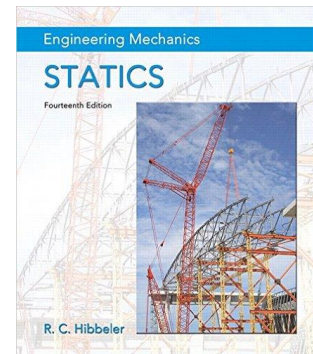
**TA Office Hours:** TBD

**Textbook:** Statics,  
14<sup>th</sup>, Edition by R.C. Hibbeler, 2016.

**Class Website:** [www.rezasalehi.com/CE1301](http://www.rezasalehi.com/CE1301)

**E-Learning and Assignments:**  
<http://www.pearsonmylabandmastering.com/northamerica/masteringengineering/>

**Course ID:** CE1301Ashtiani



**COURSE OBJECTIVES**

The objectives of CE1301 are:

This is an introductory course to familiarize the students with the fundamentals of civil engineering. Initially, we will discuss the sub-disciplines under civil engineering, what civil engineers do, the concept of design for civil engineering structures, specifications, standards and codes, and ultimately career prospects of civil engineers upon graduation. The second portion of the course pertains to the fundamental mathematical theories and physics concepts relevant to the analysis and design of civil engineering structures. Specifically, students will be able to:

1. Identify an engineering problem appropriate for engineering mechanics analysis;
2. Understand the units in engineering practice and conversions.
3. Draw a free-body diagram and identify all forces and moments acting on an object at rest;
4. Represent force and moment systems with equivalent systems; and
5. Perform an analysis to identify all forces and moments acting internally or externally on an object.

**SCHEDULE**

A tentative lecture schedule is on the class website. Reading assignments from your text and handouts will be assigned in class at the end of each lecture session. Prepared notes will occasionally be handed out in class to supplement, or in some cases to substitute for, reading material from the book. Be sure to save the notes because you will be examined over at least some of the material in them. Based on your text book we will cover the following chapters:

1. General Principles (Chapter 1)
2. Force Vectors (Chapter 2)
3. Equilibrium of a Particle (Chapter 3)
4. Force System Resultants (Chapter 4)
5. Equilibrium of a Rigid Body (Chapter 5)

**GRADING POLICY**

Your grade for this course will be determined on the basis of **1050 points** as follows:

1. Two mid-term exams (200 points each)
2. In-Class Quizzes (100 points)
3. Final comprehensive examination (250 points)
4. Homework Assignments (250 points)
5. Laboratory Reports (200 points)
6. Critical Assessment ( attendance and involvement in discussions) (50 points)

***In accordance with University regulations, students who miss examinations will receive grades of zero.*** Exceptions to this rule will be made only on a carefully considered individual basis and only if the student contacts the instructor **before** the exam. If you know in advance that you are going to miss an exam, it is **your** responsibility to inform the instructor before the exam.

**GRADE STRUCTURE**

Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

<b>Letter Grade</b>	<b>Percentage</b>	<b>Performance</b>
A	90-100	Excellent Work
B	80-89	Very Good Work
C	70-79	Average Work
D	60-69	Below Average Work
F	0-59	Failing Work

### **HOMEWORK**

*All homework problems will be assigned in the class through the Mastering Engineering website. The due date for homework submission is identified in the website for each assignment.* Past experience clearly shows that a student's grade is strongly dependent upon the effort that is put into working and understanding the homework. Homework solutions will be available on due dates. Make sure to discuss the homework solutions with your teaching assistant, to properly understand the materials. We encourage that you team up with your other classmates for this activity. Please note that each student is responsible to submit the homework assignment individually.

### **STUDY GROUPS**

Students should form study groups of about two to three persons. These groups will collaborate in the laboratory sessions. Group members are also encouraged to get together to solve the homework problems. Keep in mind that every student should submit the homework problems individually. The laboratory reports however submitted as a group effort.

### **ATTENDANCE**

*Students are expected to attend all lecture sessions and must attend all laboratory sessions.* Those who fail to attend classes regularly are inviting scholastic difficulty and, with the approval of the Dean of the College of Engineering, may be dropped from the course with a grade of F for repeated (4 or more) unexcused absences. *Homework assignments and other material will only be distributed in class and will be distributed electronically.*

*Note: The attendance for the laboratory sessions will be taken toward the end of the class.*

### **CALCULATORS AND CELL PHONES**

To prepare you for the Fundamental of Engineering (FE) and Professional Engineering (PE) exams (<http://www.ncees.org/exams/calculators/>), only the following calculators are allowed during class, labs and exams:

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

It is a very good manner to turn off your cell phones during the class lectures and lab sessions. However, please make sure that you do not have a cell phone or any other electronic item with you during the exams.

*The mere possession of a disallowed calculator, any cell phone or any other electronic item on or near you during tests is the ground for dismissing you from the exam with a grade of zero.*

### **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>

### **COURSE/INSTRUCTOR EVALUATION**

An online course/instructor evaluation will be conducted near the end of the semester. You're strongly encouraged to participate in the evaluations. Your input will used to refine and shape the future direction of the course.

### **ADDITIONAL REFERENCES**

Students are encouraged to study materials related to the subjects discussed in the class. There are many books that can help students to improve their understanding of the subjects and their problem solving skills. Some of the books that you can find in the library are:

Beer and Johnston, *Vector Mechanics for Engineers: Statics and Dynamics*. TA350.B3552

Meriam and Kraige, *Engineering Mechanics: Statics*. Fourth Edition. TA350.M458, 1997

Wolstenholme and Cantab, *Elementary Vectors*. QA433.W64

Davis and Snider, *Introduction to Vector Analysis*. QA433.D38

Jensen and Chenoweth, *Statics and Strength of Materials*. TA351.J4

Spiegel and Limbrunner, *Applied Statics and Strength of Materials*. TA351.S64

**SUPPLEMENTARY READING MATERIAL**

One of the web sites the students may want to visit is <http://cw.prenhall.com/hibbeler/>. There are many exercise (multiple-choice and true-or-false) problems designed to help the students better understand the concepts. In addition, look at this website for further coverage of the topics presented in the class. <http://web.mst.edu/~bestmech/index.html>

- Engineering Statics by Carnegie Mellon  
(<https://oli.cmu.edu/jcourse/webui/guest/join.do?section=statics>)
- Khan Academy: forces and torque (moments)
  - <https://www.khanacademy.org/math/trigonometry>
  - <https://www.khanacademy.org/science/physics/forces-newtons-laws>
  - <https://www.khanacademy.org/science/physics/torque-angular-momentum/torque-tutorial/v/introduction-to-torque>

**FINAL COMMENT**

Good luck to all of you in this course. Please do not hesitate to ask questions in class, or if necessary, to see your professor outside of class. Any specific comments that students have on how the course might be improved are particularly welcomed, especially during the semester.