

CE 1301
CIVIL ENGINEERING FUNDAMENTALS
T-R 7:30 am – 8:20 am
Physical Science Building 115
Fall 2019

Instructor: Carlos M. Chang, P.E., Ph.D.
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Office Hours: Students are always welcome

Office: A-205
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Required Tool: MasteringEngineering (www.MasteringEngineering.com)
Course ID: CE1301CHANG
iClicker : <https://www.iclicker.com/students>

References: Engineering Mechanics: STATICS 14th Edition by R.C. Hibbeler
Civil Engineer's Handbook of Professional Practice, Karen Lee Hansen and Kent E. Zenobia. ASCE Press

Co-requisite: MATH 1411 Calculus

COURSE OBJECTIVES

The main course objective is to introduce students to the civil engineering disciplines: geotechnical, structural, transportation, environmental, construction, and others. In this course, the students will learn: (1) fundamental concepts of sustainability and major impacts of civil engineering projects; (2) engineering mechanics fundamental principles with a focus on statics; (3) introduction to technical writing; (4) civil engineering career paths including professional engineering licensure with an emphasis on ethical behavior as the core foundation for professional practice. Emphasis in the course is given to increase their awareness of the multidimensional competencies required to succeed as a civil engineering. At the end of the course, students will know the fundamental principles and skills needed in the analysis, design, construction, and maintenance of civil engineering infrastructure.

COURSE TOPICS

Fundamental Knowledge for Civil Engineering Practice

1. Introduction to Civil Engineering
2. Fundamental Concepts of Sustainability
3. Ethics
4. Technical Writing
5. Civil Engineering Professional Practice

Introduction to Engineering Mechanics

6. General Principles
7. Force Vectors
8. Equilibrium of a Particle
9. Force System Resultants
10. Introduction to Dynamics

Note: Handouts will be provided during the development of the course. Students should review their UTEP e-mails, username@miners.utep.edu, periodically for communications related to the course. A virtual folder will be implemented to facilitate distribution of the course material.

GRADING

Your grade for this course will be determined on the basis of 100 points as follows:

Regular Exams 1, 2, 3	45 points
Final Exam	25 points
Quizzes	15 points
Assignments and Peer-Evaluations	15 points

Final grades are based on the normal distribution of points as shown below:

A	100 - 90
B	89 - 80
C	79 - 70
D	69 - 60
F	< 60

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

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 under extraordinary circumstances and only if the student contacts the instructor one week 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.

Any discrepancies with your grades in assignments, quizzes, or exams need to be resolved no later than seven calendar days after you have received your grade. Grades discrepancies for quizzes and assignments should be resolved with your TA. If you still have a discrepancy on your grade, you can make an appointment with your instructor within the seven days. Discrepancies regarding grades on exams should be resolved with your instructor within seven calendar days after you have received your grade. After the seven calendar day period, issues regarding grades on assignments, quizzes, or exams will only be entertained.

ATTENDANCE

Students are expected to attend all class periods. Those who fail to attend class regularly will miss lectures, class learning activities, and quizzes. Students with four or more unexcused absences will be inviting scholastic difficulty and may be dropped from the course with a grade of F with the approval of the Dean of the College of Engineering.

DISABILITIES

Students with disabilities will be accommodated. Students are required to notify the instructor of any disability at least one week before the start of class.

TEACHING METHODOLOGY

The teaching methodology is learner-centered using active learning techniques in the sessions. Read material assigned by the instructor prior to the class and review the subject thoroughly after the class. Students should be ready any of the topics covered in the class. Work on all the numerical examples given in the class sessions, solve as many problems as you can. Students will submit the work problems for the assignments related to the Introduction to Engineering

Mechanics: Statics through the MasteringEngineering online resource (Course ID: CE1301CCHANG), and keep a portfolio with the solution process. Additional on-line tools or cell phone apps for learning purposes will be used in class including a cloud-based student response software by iClicker. Sign in to Blackboard (available from <https://my.utep.edu/>) and click the link for this course. Search for the iClicker REEF icon on the Home Page. Click this link to launch a special instance of REEF, then log in, or create a new REEF account. When creating your account, use your university email address (username@miners.utep.edu).

STUDY AIDS

One of your major study aids for the topics related to the introduction to Engineering Mechanics: Statics is MasteringEngineering. This learning tool was developed at MIT and provides students a personalized learning environment. Some of the features include:

- Automatic grading for immediate feedback to students.
- Wrong-answer specific feedback.
- Hints to help students in problem solving.
- Adaptive follow-up assignments
- Ability to track student performance to ABET learning outcomes.
- Powerful diagnostic gradebook

A study team approach will be followed in the course for solving the assignments. Part of the lab sessions will be dedicated to reinforce the learning process and discussed selected problems. You are also always welcome to visit your instructor following an open-door policy or making an appointment. There are two teaching assistants (TAs) assigned to the course. The TAs will assist the instructor in grading quizzes, proctoring exams, and answering questions. You are highly encouraged to bring your questions to the lab sessions since other students may have similar questions. Your teaching assistants are:

- Aria Fathi: afathi@miners.utep.edu
- Jesus Castro: jcastroper@miners.utep.edu

EXAMS

Three regular exams and a Final Exam will be given in the course. Exams are comprehensive and can cover all topics up to that date. The exam dates will be announced at least one week in advance.

ASSIGNMENTS

Assignments will be assigned regularly. Past experience clearly shows that a student's grade is strongly dependent upon the effort is put by a student into solving the assignments. The purpose of the assignments is to develop your fundamental skills and prepare you for quizzes and exams. Assigned readings and problems are the minimum amount of effort that you should invest to learn the subject.

Study Teams and Peer Evaluation

You should form study teams (4-5 students) to discuss and solve the assignments. The study team MUST maintain a homework portfolio with solutions to assignments. The instructor or TA can review the homework portfolio at any time. The instructor can call individual students or teams to present problem solutions in the class or lab sessions. Peer evaluations of team members will be facilitated with the team assignments including the laboratory sessions. Your peers will evaluate you based on five dimensions of team-member contributions (Contributing to Work; Interacting with Teammates; Keeping Team on Track; Expecting Quality; and Having Knowledge/Skills).

Fundamental Knowledge for Civil Engineering Practice

Assignments related to the corresponding topics will check your understanding in the application of the fundamental principles including: background of civil engineering practices, sustainability, ethics, technical writing, power point presentations, videos, surveys, visits, and others. Some assignments may not be graded and learning will be tested in a quiz.

Introduction to Engineering Mechanics: Statics

Problem assignments will be given and solved in the MasteringEngineering® resource center. Read the “Get Started with Pearson’s MasteringEngineering” information to begin and use all the available learning tools. This video will walk you through the MasteringEngineering registration process and will also provide some helpful tips. <https://youtu.be/kUUrUtb5Gqc>.

QUIZZES

You should expect a quiz once a topic is completed. The quiz will cover theoretical aspects (definitions and derivations) and/or problem solving skills. Length of the quizzes may vary depending on the topic. Quiz scores will depend on showing calculations and clearly indicating the correct answer. The quizzes will be closed book and closed notes unless told otherwise.

No make-up quizzes will be given. The lowest score will be eliminated. If you miss a quiz, that quiz counts toward the lowest score to be eliminated. Quizzes are focused on latest lectures, assignments, and lab sessions but you should expect some questions related to previous topics to reinforce your learning process. The quiz is a learning tool to monitor your learning progress from homework, and prepare you for the exams. Quizzes can be on paper or on-line. There may be other learning activities conducted in class that may count as a quiz.

CALCULATOR POLICY

Only models of calculators approved by NCEES are permitted during exams and quizzes. The following are the only calculators that will be permitted during quizzes and exams:

Casio: All fx-115 models. Any Casio calculator must contain fx-115 in its model name.

Hewlett Packard: The HP 33s and HP 35s models, but no others.

Texas Instruments: All TI-30X and TI-36X models. Any Texas Instruments calculator must contain either TI-30X or TI-36X in its model name.

More information about the NCEES calculator policy: <https://ncees.org/exams/calculator-policy/>

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 (Regents’ Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22). Scholastic dishonesty harms the individual, all students, and the integrity of the university. Policies on scholastic dishonesty will be strictly enforced.

HONOR CODE

The Civil Engineering Department embraces the Honor Code: “Civil Engineering and Construction Management are licensed professions that are regulated by each state through a licensing or engineering practice law. Each state requires engineers to protect the public safety and act in an honest and trustworthy manner. These standards of ethical behavior are also codified in ethics guidelines established by the National Society of Professional Engineers (NSPE), the American Society of Civil Engineers (ASCE), and the Texas Society of Professional Engineers (TSPE).” Please learn more about the honor code Department Policy and disciplinary actions here: <http://catalog.utep.edu/undergrad/college-of-engineering/civil-engineering/>

COURSE/INSTRUCTOR EVALUATION

A course/instructor evaluation will be conducted in class near the end of the semester.

FINAL COMMENT

The instructor expects all the students to succeed in learning the course subjects. It is critical for your success to establish a good studying habit in order to do very well in this course. If you feel that you are not understanding a subject, please do not hesitate to ask questions in class, or see your instructor or teaching assistant outside of class. Any specific comments that students have on how the course might be improved are particularly welcomed.