# CE 3336 – 11289 Civil Engineering Materials
**MW 12:30-1:20 CRBL 305**

**Fall 2023**

Instructor: Vivek Tandon (vivek@utep.edu) Office Hours: MS Teams

Required Text: *Materials for Civil and Construction Engineers*, Mamlouk and Zaniewski, Addison Wesley Longman, Inc., 4th edition.

References: *Lecture Notes and Laboratory Notes*

## OBJECTIVES OF COURSE

The CE 3336 course focuses on understanding appropriate mechanical and physical properties of civil engineering materials, including Asphalt, Asphalt Concrete, Portland cement, Portland cement concrete, aggregates, wood, masonry, and the nature of the material.

## SCHEDULE

A tentative lecture schedule is attached. Reading assignments will be assigned during the lecture; you are expected to read the appropriate assignment before the lecture.

Prepared notes will also be occasionally 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 evaluated over the topics covered in the notes.

## GRADING

Your grade for this course will be determined based on 1,600 points using the following weightage:

1. Assigned Homework Grade (240)
2. Three exams 150 points each (total points =4 50 points)
3. One Final Exam (300 points)
4. Quiz (300 points)
5. Laboratory (310 points)

In accordance with University regulations, students who miss examinations will receive zero grades. 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. You must inform the instructor beforehand if you know you will miss an exam.

## HOMEWORK

Homework problems will be assigned on every topic. Homework will be assigned and submitted online (MS Teams portal) but will not be evaluated. Instead, the TA will count the number of problems worked on, and if all the assigned problems have been submitted, a 100% grade will be assigned to that homework. Experience clearly shows that a student's grade depends on the effort put into working and understanding the homework. Homework solutions will be available after the due dates. We encourage you to team up with your classmates for this activity.

## QUIZZES

Students will be quizzed in every lecture session except on exam day. The quiz will be similar to the homework problems from the previous week, the examples solved in the class, or the examples in the textbook or reading assignments. The duration of the quiz will be less than 10 minutes. The three lowest grades obtained will not be considered to accommodate possible emergencies.

## EXAMINATIONS

Examinations are generally held during the class period for about 50 minutes. The tentative dates and topics covered are included in the attached schedule. In addition, for those students who missed the exams due to reasons beyond their control and desire to take a makeup test, a makeup test will also be conducted on the day of the final at the end of the final exam. However, to take this test, the students should provide their homework and quizzes and request a makeup exam. To be eligible for a makeup exam, you should have an average of better than 70% on the homework and quizzes related to the topics covered on a given exam.

## FINAL EXAMINATION

The final examination will cover the whole course and will last two hours and 45 minutes. **To pass the course, you must receive more than 50% grade in the final exam.** The final exam will be multiple-choice, and partial credit will not be given for wrong answers.

## STUDY GROUPS

Students should form study groups of about four to five persons. These groups will collaborate in the laboratory sessions. Group members are also encouraged to get together to solve homework problems. Keep in mind that working together does not mean copying from each other.

## ATTENDANCE and CLASS PARTICIPATION

Students are expected to attend all class periods and must attend all laboratory periods. Those who fail to attend class regularly are experiencing academic 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 (three unexcused absences or three excused absences). All students are expected to participate in the class activities and quizzes. The attendance will comprise class participation, a quiz on the covered topics, and random questions. If you miss any activity, you will be marked absent.

## Homework assignments and other material will only be distributed in the class or MSTeams.

## POLICY ON CHEATING

Students are expected to be above reproach in all academic activities. Students who engage in academic 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, and any act designed to give an 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. Therefore, policies on academic dishonesty will be strictly enforced.

## COURSE/INSTRUCTOR EVALUATION

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

## LABORATORY

Each student must register for a laboratory section. You will not be allowed to pass this course if you do not attend all laboratories. Please consult me if you have to miss a laboratory to schedule some makeup in advance. We are very interested in seeing that the laboratory provides the

necessary training without the undue burden on your time. Please inform us of any problems you are having with your laboratory.

## 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 instructor outside class. Students' specific comments on improving the course are particularly welcomed.

## Tentative Lecture and Laboratory Schedule

| Week | Monday | Wednesday | Exam Topics | Laboratory |
|---|---|---|---|---|
| 08/28 | Intro. | Topic 1 | | No Laboratory |
| 09/04 | **Labor Day** | Topic 1 | | No Laboratory |
| 09/11 | Topic 1 | Topic 1 | | Virtual Plant Visit |
| 09/18 | Topic 2 | Topic 2 | | How to Prepare Laboratory Report |
| 09/25 | Topic 2 | Topic 3 | | Introduction to Measuring Devices |
| 10/02 | **Exam I** | Topic 3 | **1-2** | Specific Gravity, Absorption, & Gradation |
| 10/09 | Topic 3 | Topic 4 | | Mortar Specimen Preparation |
| 10/16 | Topic 4 | Topic 4 | | Mortar Test |
| 10/23 | Topic 4 | Topics 4 &5 | | Concrete Mix Design |
| 10/30 | Topic 5 | Topic 5 | | Preparation of Concrete Specimens |
| 11/06 | Topic 5 | Topic 5 | | Binder Test Demonstration |
| 11/13 | **Exam II** | Topic 6 | **3-4** | Asphalt Concrete Mix Design Problem |
| 11/20 | Topic 6 | Topic 6&7 | | Asphalt Concrete Mix Testing |
| 11/27 | Topic 7 | Topic 8 | | Properties of Wood and Testing of Concrete Specimen |
| 12/04 | Topic 8 | **Exam III** | **5-7** | Masonry Demo |
| **Final Exam December 11th, 7:00 a.m. – 9:45 a.m.** | | | | |

| Topic No. | Subject | Assigned Reading |
|---|---|---|
| **1** | *Materials Engineering Concept* | **Chapter 1** |
| **2** | *Aggregates* | **Chapter 5** |
| **3** | *Portland Cement* | **Chapter 6** |
| **4** | *Portland Cement Concrete* | **Chapter 7** |
| **5** | *Asphalt and Asphalt Mixtures* | **Chapter 9** |
| **6** | *Wood* | **Chapter 10** |
| **7** | *Masonry* | **Chapter 8** |
| **8** | *Nature of Materials* | **Chapter 2** |