

CE 3345: Design of Concrete Structures

Class Reference Number:	12707
Class Meeting:	TR, 9:00 am – 10:20 am
Class Room:	UGLC 216
 Instructor:	 Edel Arrieta, Ph.D. Annex, A-202 E-mail: egarrieta@utep.edu Office Hours: TR 10:30 am – 12:00 pm
 Prerequisite:	 CE 3343 – Structural Analysis I CE 3136 – Engineering Materials Laboratory
 Textbook:	 <i>Design of Reinforced Concrete</i> ; Jack C. McCormac and Russell H. Brown, 9 th Edition, Wiley, 2015.
 References:	 ACI 318-14 or 318-11, “Building Code Requirements for Reinforced Concrete” (Code and Commentary), American Concrete Institute, Detroit, MI. https://www.concrete.org/ ASCE Standard 7-10, “Minimum Design Loads for Buildings and Other Structures”, American Society of Civil Engineers.

Catalog Description of the Course

Reinforced concrete theory; design of beams, columns, slabs, footings, and retaining walls using current design specifications.

Course Subjects

Chapter	Topic
1	Introduction
2	Flexural Analysis of Beams
3	Strength Analysis of Beams According to ACI Code
4	Design of Rectangular Beams and One-Way Slabs
5	Analysis and Design of T Beams and Doubly Reinforced Beams
6	Serviceability
7	Bond, Development Lengths, and Splices
8	Shear and Diagonal Tension
9	Introduction to Columns
10	Design of Short Columns
11	Slender Columns
12 & 13	Footing and Retaining Walls (if time permits)

Grades

Your grade for this course will be assessed based on your performance in the three mid-term exams (50%), ACI online training (25%), and comprehensive final departmental exam (25%). Every student is required to take the departmental final exam at the end of the period.

Your final grade will be calculated based on the points you have accumulated as follows:

- A ≥ 90
- B ≥ 75 but < 90
- C ≥ 65 but < 75
- D ≥ 60 but < 70
- F < 60

NOTE: If a student's grade in the final exam does not exceed 50% of the total, the course final grade will be an "F" even if the compounded grade is larger than the 60 points required to obtain the minimum passing grade.

No curve in any homework or any exam. No extra credit will be offered in this class. No personal favors. Don't ask!

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

Allowed Calculators

The following will be the only calculators allowed in exams:

- Hewlett Packard – HP 33S
- Casio – FX 115MS or FX 115MSPlus
- Texas Instruments – TI 30X IIS
- Texas Instruments – TI 36X SOLAR

These are the same calculators that are currently being allowed in the Fundamental of Engineering (FE) and Professional Engineering (PE) exams (<http://www.ncees.org/exams/calculators/>). 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.

Study Aids

Instructor's Office Hour

You are always welcomed to visit the instructors at the posted hours or by making an appointment.

Teaching Assistant

There will be a teaching assistant (TA) assigned to each session of the course. The TA will assist the instructor in grading quizzes, proctoring exams, and answering questions. In addition to the instructor's office hour, there will be TA's office hours to answer your questions. The TA's schedule will be announced in during the first week of the class.

Teaching Assistant: TBA

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.

Course Portfolio

Students are required to prepare a course portfolio documenting all materials relevant to the course. The portfolio shall contain the Student's Class Record, class notes, exams, homework, study notes, and any relevant materials accumulated during the semester. The instructor believes the students will benefit from the portfolio years later when they need to review the learned subjects for advanced courses or professional engineer licensure exam.

Attendance and Tardiness

Attendance is non-compulsory; however, the instructor can assign homework or hold quizzes that you are required to submit and/or attend. A grade of zero will be assigned to homework not submitted or to a quiz not taken. The instructor appreciates all efforts to attend the class. Please let the instructor know in advance if you need to miss a class for a reasonable motive. There will be no penalty for being late. However, exams and quizzes may 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 (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.

ACI online training

Students are expected to take a minimum of any three (3) online training courses, of their most interest, available at no charge through ACI and submit a hard copy of their certificates with their ACI member number. At least one certificate needs to be submitted by the last class of the month to receive full-credit; NO late submissions are accepted.

Recommended ACI online training courses:

- [On-Demand Course: Curing: Finish the Construction](#)
- [On-Demand Course: Reinforcement for Concrete \(Part 1 - Intro to Chapter 3.1\)](#)
- [On-Demand Course: Guide to Hot Weather Concreting: Chapter 5 Production and Delivery; Chapter 6 Placing and Curing](#)
- [On-Demand Course: Guide to Cold Weather Concreting: Chapter 8 Protection Against Freezing for Structural Concrete](#)
- [On-Demand Course: Concrete Consolidation in the 21st Century](#)
- [On-Demand Course: Emerging Technologies in Civil Infrastructure](#)
- [On-Demand Course: ACI 301-16 Specifications for Structural Concrete \(Part 1\)](#) (Part 2) and (Part 3)
- [On-Demand Course: Aggregates for Concrete \(Part 1\)](#) and (Part 2)
- [On-Demand Course: Control of Cracking in Concrete Structures \(Chapter 3\)](#)
- [On-Demand Course: Cementitious Materials for Concrete \(Part 1 - Intro to Chapter 4.1\)](#)