TED UNIVERSITY

CE 314
Reinforced Concrete Fundamentals

SYLLABUS/SPRING 2019

Course Information

Required or Elective	☑Required ☐Elective	**Date Prepared**	February 2019
Semester	Spring 2019	**Class Hours and Classrooms**	Tue. 10:00 – 12:00 (D230) **S1**, Wed. 11:00 – 12:00 (D230) **S1** Tue. 10:00 – 12:00 (G003) **S2**, Wed. 11:00 – 12:00 (G003) **S2**
Course Credit Hours/ ECTS credits	(3+0+0) 3 / 6	**Pre-requisite/ Co-requisite**	CE214
Level of Course	Junior	**Language of Instruction**	☑ English ☐ Turkish
Instructors and their office hours	Prof. Dr. Güney Özcebe All available times. Alternatively you may also take appointment from Çağrı Koca (312) 585-0100 Dr. Rıza Secer Orkun Keskin (secer.keskin@tedu.edu.tr)(Rm. D313) Office hours: TBA Please make an appointment through e-mail for other times.		
Teaching Assistant(s)	Ömer Can Pamuk; Rm. F308		
Textbook	Reinforced Concrete by Ersoy U, Ozcebe G, Tankut T, METU-Press, 2012.		
Recomended Readings	Any introductory Reinforced Concrete book available in the library. Among them a) Ferguson, Breen & Jirsa, Reinforced Concrete Fundamentals and b) Park & Paulay, Reinforced Concrete Structures are of particular importance.		
Course Web Pages	Please register to Moodle page http://moodle.tedu.edu.tr and regularly follow this link to have access to course materials.		

Course Description

Mechanical behavior of concrete in uniaxial and multiaxial states of stress. Time dependent behavior of concrete. Mechanical behavior of reinforcing steel. Behavior and strength of uniaxially loaded members; confinement. Behavior and strength of members in pure bending. Behavior and strength of members under combined bending and axial load. Behavior and strength of members under combined shear and bending.

Course Objective

This course aims to:

1. establish the basic principles of reinforced concrete structural member and system behavior and;
2. to introduce the basic principles of the analytical methods and design procedures.

Course Learning Outcomes

On successful completion of this course, students will be able to:

1. interpret indications of different reinforced concrete structural behavior types to a certain extent,
2. perform analysis and design computations for some basic structural members concerning some basic problems,
3. check the validity of computer outcomes using some simple manual approximate methods of computation.

Course Assignments

1. ***Homework Assignments, Quizzes and Reading Assignments (15%):***
   - A number of problems will be assigned for each subject studied. All assignments will be posted and collected via Moodle Page of the course. You will receive an assignment notification e-mail once the assignment is posted. It is your own responsibility to follow all assignment notification e-mails. You are expected to solve all assigned questions and submit them via the same platform. Late homework submissions will be penalized 25 percent for each day.
   - Depending on the performance of the class pop-up quizzes may be given.
   - Besides, reading assignment from the text book will be issued whenever appropriate. The students are responsible from these materials in the exams regardless of the coverage of this material in the lectures.
2. ***Midterm Exams (55%):*** Two term tests will be given on the announced dates. Each term test will cover all the material studied from the beginning to that date.
3. ***Final (30%):*** There will be a cumulative final.

Course Assessments & Learning Outcomes Matrix

Assessment Methods	Course Learning Outcomes
Homework Assignments	#1, #2, #3
Midterm Exam I	#1, #2
Midterm Exam II	#1, #2, #3
Final Exam	#1, #2, #3

Relationship to Program Outcomes

This course contributes to fulfillment of the following program outcomes:

ii. Apply knowledge of mathematics, science, and engineering to design and implement original, innovative and sustainable civil engineering systems or processes to meet desired needs within a greater societal context

vi. Identify, formulate, and solve engineering problems

xi. Employ state-of-the-art engineering techniques and computing tools necessary for creative engineering solutions

Teaching Methods & Learning Activities

- ☑ Telling/Explaining
- ☐ Discussions/Debates
- ☑ Questioning
- ☑ Reading
- ☐ Peer Teaching
- ☐ Scaffolding/Coaching
- ☑ Demonstrating
- ☑ Problem Solving
- ☐ Inquiry
- ☑ Collaborating
- ☐ Think-Pair-Share
- ☐ Predict-Observe-Explain
- ☐ Microteaching
- ☑ Case Study/Scenario Analysis
- ☐ Simulations & Games
- ☑ Video Presentations
- ☐ Oral Presentations/Reports
- ☐ Concept Mapping
- ☑ Brainstorming
- ☐ Drama/Role Playing
- ☐ Seminars
- ☐ Field Trips
- ☐ Guest Speakers
- ☐ Hands-on Activities
- ☐ Service Learning
- ☐ Web Searching
- ☐ Experiments
- ☐ Other(s)

Student Workload:

Estimated as 162-175 hrs. Please note: 1 ECTS Credits = 25-30 hrs. 6 ECTS = 150 – 180 hrs.

- ☑ Lectures ..... **42-50 hrs**
- ☑ Course Readings ..... **75 hrs**
- ☐ Workshop ..... hrs
- ☐ Online Discussion ..... hrs
- ☐ Debate ..... hrs
- ☐ Work Placement ..... hrs
- ☐ Field Trips/Visits ..... hrs
- ☐ Observation ..... hrs
- ☐ Lab Applications ..... hrs
- ☐ Hands-on Work ..... hrs
- ☑ Exams/Quizzes ..... **10 hrs**
- ☐ Resource Review ..... hrs
- ☐ Research Review ..... hrs
- ☐ Report on a Topic ..... hrs
- ☐ Case Study Analysis ..... hrs
- ☐ Oral Presentation/Reports ..... hrs
- ☐ Poster Presentation ..... hrs
- ☐ Demonstration ..... hrs
- ☐ Web Designs ..... hrs
- ☐ Mock Designs ..... hrs
- ☐ Team Meetings ..... hrs
- ☑ Other: Homework ..... **35-40 hrs**

Assessment Methods

- ☑ Test/Exam
- ☑ Quiz (whenever appropriate)
- ☑ Oral Questioning
- ☐ Performance Project
  - ☐ Written ☐ Oral
- ☑ Observation
- ☐ Self-evaluation
- ☐ Peer Evaluation
- ☐ Portfolio
- ☐ Presentation (Oral, Poster)
- ☑ Other(s): Homework

Course Outline

Week	Topics
1 - 2	• Introduction: Materials, Design Philosophies
2 - 3	• Probabilistic Basis of Design Philosophies
4 -5	• Uniaxially Loaded Members
6	• **Midterm Exam #1 – March 23, 2019 @10:00-12:00**
5 – 8	• Pure Bending
9-11	• Combined Bending and Axial Loading
10	• **Midterm Exam #2 – April 20, 2019 @10:00-12:00**
12-13	• Shear
14	• Bond

Course Policies and Some Remarks

Attendance

As the instructors teaching this course over the past 10 years, our records indicate that a student with an attendance rate more than 85 percent has a very high chance to get a mark over BB. On the contrary failure rate rapidly increases among those students who attend less than 70 percent of all lectures. In order to get a good grade we strongly advise our students not to miss any course. Benefitting old-wise-men experiences always help.

Calculator Policy

We are using our calculators from birth, including the exams. Why shouldn't you?

Other Devices with Bluetooth, Wi-Fi or GSM Access

You may enjoy these devices outside the exam hall. Your exam table must be free of devices with such abilities. The use of these devices during the exam is strictly not allowed. Failure to obey this policy will be worthy of the necessary action depending on the severity of the disobedience.

Plagiarism

The actions listed below are some examples of plagiarism:

- Turning in someone else's work as your own
- Copying words or ideas from someone else without giving credit

- Failing to put a quotation in quotation marks
- Giving incorrect information about the source of a quotation
- Changing words but copying the sentence structure of a source without giving credit
- Copying so many words or ideas from a source that it makes up the majority of your work,
- whether you give credit or not" (www.plagiarism.org)

Collaboration on non-collected homework and in studying is strongly encouraged; however, the work you hand in must be solely your own. Sharing written work before it is turned in to be graded is academic dishonesty. For more information on TEDU policy on intellectual integrity see the link http://student.tedu.edu.tr/sites/default/files/content_files/2015-2016ogrencielkitabi.pdf

Please pay extreme attention to **Article 30 Senate Decision [L] of the Undergraduate Education Regulations and Principles of Academic Honesty**
http://registrar.tedu.edu.tr/sites/default/files/content_files/docs/tedu_lisans_yonetmeligi.pdf

https://student.tedu.edu.tr/tr/student/akademik-durustluk-ilkeleri

Don't be someone saying "*All my best thoughts were stolen by the ancients, (Ralph Waldo Emerson).*" Be yourself, be original and be among those blessed people that never articulated these words.

Disability Support

If you have a disabling condition which may interfere with your ability to successfully complete this module, please contact Student Activities Specialist at Dean of Students Office Mr Peyman Jaferi, (email: peyman.jaferi@tedu.edu.tr, phone: (312) 585-0132) or Assist. Prof. Dr. Onur Özmen (email: onur.ozmen@tedu.edu.tr, phone: (312) 585-0206). For more information please see Handbook for Registered Students.

Make Up Exams

Make-up exams for midterm exams for ordinary excuses will not be offered. The possible exceptions are serious illness or emergency of high importance (legal proof is required). To tell you the truth, for not-so-serious illnesses such as having a runny nose, sore throat or even low fever, a soft paper tissue, a throat relieving pastille or an antipyretic may help you much better than writing a make-up exam.

Also please read the document given in the link http://www.tedu.edu.tr/tr/main/yonetmelikler-ve-yonergeler