CE 363
Basics of Concrete Structures for Surveying Students

Department of Civil Engineering
King Saud University

Course Description: CE 363 Basics of Concrete Structures for Surveying Students (Required for a BSCE degree in Surveying Program)	Introduction to concrete technology; composition and properties of concrete; tests of fresh and hardened concrete, analysis of simple and continuous beams, design for bending and shear. Design of short columns, bond strength and development length. 3(3,1,0)
Prerequisite	CE 302 Topics: 1. Calculate different types of stresses. 2. Calculate axial deformation. 3. Analyze force systems and moments. 4. Draw shear force and bending moment diagrams.
Course Learning Outcomes	Students completing successfully the course will be able to: 1. Recognize the basic properties of fresh and hardened concrete. 2. Demonstrate different laboratory tests for fresh and hardened concrete. 3. Analyze simple and continuous beams 4. Recognize the importance of building Codes and demonstrate the RC design process 5. Analyze the flexural behaviour of reinforced concrete beams 6. Design beams for bending and shear 7. Design reinforced concrete short column. 8. Recognize the mechanism of bond transfer and development length
Topics Covered	1. Introduction to Concrete Technology (3 hours) 2. Composition and properties of concrete. (8 hours) 3. Tests of fresh and hardened concrete. (5 hours) 4. Analysis of simple and continuous beams. (5 hours) 5. Design for bending and shear. (12 hours) 6. Design of short columns. (6 hours) 7. Bond strength and development length. (3 hours)
Class/ tutorial Schedule	Class is held three times per week in 50-minute. There is also a 50-minute weekly tutorial associated with this course.
Computer Applications	None

Project	**None**
Contribution of Course to Meeting the Professional Component	1. Students should determine the important properties of concrete required in design. 2. Students should recognize the importance of this basic course for the design of reinforced concrete structures.
Relationship of Course to Student Outcomes	1. Students apply algebra, elementary calculus, and principles of mechanics. 2. Students are able to identify and formulate an engineering problem and to develop a solution. 3. Students recognize the importance of construction materials 4. Students recognize the importance of analysis in designing structural members. 5. Students recognize the importance of the design process. 6. Students recognize the importance of codes in structural design 7. Students are told to improve their writing, communication and presentation skills.
Textbook(s) and/or Other Required Material	1. Design and control of concrete mixtures, by Steven Kosmatka, and Michelle Wilson, Portland Cement Association, 2011. 2. Reinforced Concrete: Mechanics and Design, 5th edition, by J. K. Wight, & J. G. MacGregor, Prentice-Hall, 2009. 3. The Saudi Building Code (SBC 304), Concrete Structures, 2007.
Instructor	**Dr. Mohammad Alhaddad – 0505993094, drmalhaddad@gmail.com**
Grade Distribution	There are one **personal** 90-minute midterm exams and a **personal** 180-minute final Exam and also some homework and quizzes in tutorial hours. The course grade distribution is as follows: **35%-1st Midterm: Thursday of the 8th week** **Quizzes: 10%** 15%- (Lab Reports, Home works, and Attendance) 40% Final Exam
Date of Preparation	3rd Quarter, 1444