


College of Engineering		 جامعة الملك سعود King Saud University 1957										
Department of Civil Engineering												
<b>CE 363 Basics of Concrete Structures for Surveying Students</b>												
<b>Credit and Contact hours</b>	3/ 3(Lectures), 1 (Tutorials), 0 (Laboratory)											
<b>Required, or Elective</b>	Required for a BSCE degree											
<b>Course Description</b>	Introduction to concrete technology; composition and properties of concrete; tests of fresh and hardened concrete, analysis of simple and continuous beams, design of bending and shear. Design of short columns, bond strength and development length.											
<b>Prerequisites or Co-requisites</b>	CE 302 (Mechanics of Materials)											
<b>Course Learning Outcomes</b>	Students completing this course successfully will be able to <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Course Learning Outcomes</th> <th style="text-align: center;">Related Student Outcomes (SO)</th> </tr> </thead> <tbody> <tr> <td><b>CLO1.</b> Evaluate the strength of existing simple and continuous beams, and short columns to decide safety and load-carrying capacity.</td> <td style="text-align: center;"><b>SO4</b></td> </tr> <tr> <td><b>CLO2.</b> Design simple and continuous beams and short columns considering safety, serviceability and economic aspects.</td> <td style="text-align: center;"><b>SO2</b></td> </tr> <tr> <td><b>CLO3.</b> Evaluate of bond transfer and development length in satisfying the code requirements.</td> <td style="text-align: center;"><b>SO4</b></td> </tr> <tr> <td><b>CLO4.</b> Demonstrate the knowledge of element design for carrying out team-based mini design projects and present the designs professionally to instructors and the students.</td> <td style="text-align: center;"><b>SO3</b></td> </tr> </tbody> </table>		Course Learning Outcomes	Related Student Outcomes (SO)	<b>CLO1.</b> Evaluate the strength of existing simple and continuous beams, and short columns to decide safety and load-carrying capacity.	<b>SO4</b>	<b>CLO2.</b> Design simple and continuous beams and short columns considering safety, serviceability and economic aspects.	<b>SO2</b>	<b>CLO3.</b> Evaluate of bond transfer and development length in satisfying the code requirements.	<b>SO4</b>	<b>CLO4.</b> Demonstrate the knowledge of element design for carrying out team-based mini design projects and present the designs professionally to instructors and the students.	<b>SO3</b>
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<b>Student Outcomes related to this Course</b>	<b>SO2.</b> an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors [ABET 2]  <b>SO 3.</b> an ability to communicate effectively with a range of audiences. [ABET 3]											

	<b>SO4.</b> an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. [ABET 4]	
<b>Topics Covered</b>	<b>List of Topics</b>	
		<b>Related CLOs</b>
	1. Introduction to Concrete Technology	CLO1
	2. Composition and properties of concrete	CLO1
	3. Tests of fresh and hardened concrete	CLO1
	4. Analysis of simple and continuous beams.	CLO1
	5. Design for bending and shear	CLO2
	6. Design of short columns	CLO2
	7. Bond strength and development length	CLO3
8. Mini Project and Presentation of the Project	CLO4	
<b>Textbook(s) and Other Required Material</b>	<p>1. Design and control of concrete mixtures, by Steven Kosmatka, and Michelle Wilson, Portland Cement Association, 2011.</p> <p>2. Reinforced Concrete: Mechanics and Design, 5th edition, by J. K. Wight, &amp; J. G. MacGregor, Prentice-Hall, 2009.</p> <p>3. The Saudi Building Code (SBC 304), Concrete Structures, 2007.</p>	
<b>Grading System</b>	<p>Two Mid-term Exams            50 %</p> <p>Quizzes and lab Experiment    10%</p> <p>Final Exam:                        40%</p>	
<b>Instructors</b>	<p>Prof. Mohammad Al-Shannag (2A31), email; <a href="mailto:mjshannag@ksu.edu.sa">mjshannag@ksu.edu.sa</a></p> <p>Dr. Fahed Alrshoudi (2A41), email; <a href="mailto:falrshoudi@ksu.edu.sa">falrshoudi@ksu.edu.sa</a></p>	
<b>Date of Review</b>	November, 2020	