

Course unit title:	Reinforced Concrete Structures II		
Course unit code:	CE405		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor		
Year of study:	4		
Semester when the unit is delivered:	7 (Fall)		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr. Demetris Nicolaides		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Explain the principles of serviceability, durability and stability requirements. 2. Describe the methods for the analysis and design of special types of reinforced concrete (RC) beams and slabs. 3. Describe the methods of analysis and design of slender columns and non-rectangular sections of columns. 4. Analyse the principles of reinforcement detailing in several types of RC members. 5. Introduce the problem of design of composite structures. 		
Mode of delivery:	Face-to-face		
Prerequisites:	CE310	Co-requisites:	None
Recommended optional program components:			
Course contents:	<p><u>Serviceability, Durability and Stability requirements</u> Introduce the reasons for flexural, thermal and shrinkage cracking and other serviceability requirements.</p> <p><u>Design of Special Types of RC Beams and Slabs</u> Describe the process of design of RC beams with moment redistribution. Explain the design principles of flanged beams, corbels and deep beams and also introduce the design of RC beams for torsion. Explain the design concept of stair slabs and flat slabs.</p> <p><u>Design of RC Columns and Walls</u> Describe the design procedure of non-rectangular column sections and slender columns. Explain the procedure of design of RC walls.</p> <p><u>Reinforcement Detailing</u> Analyse the details for the provision and placement of reinforcement in structural members. Explain the concept of reinforcement detailing through designated examples and assignments.</p> <p><u>Composite Construction</u> Introduce the problem of design of different kinds of composite structures and describe the major steps of the design procedure and checks.</p>		
Recommended and/or required reading:			
Textbooks:	Reinforced Concrete Design to Eurocode 2, 7 th Edition, 2012, W.H. Mosley, R. Hulse and J.H. Bungey, Palgrave.		
References:	<p>Designers' Guide to EN 1992-1-1 and EN 1992-1-2. Eurocode 2: Design of Concrete Structures. General Rules and Rules for Buildings and Structural Fire Design. A. W. Beeby and R. S. Narayanan, 2005.</p> <p>EN 1992 Eurocode 2: Design of Concrete Structures</p> <p>EN 1990 Eurocode 0: Basis of Structural Design</p>		

	EN 1991: Eurocode 1: Actions on Structures
Planned learning activities and teaching methods:	The course is delivered through theoretical lectures in class and educational field visits. The lectures present to the student the course content and allow for questions. Part of the material is presented using visual aids. The aim is to familiarize the student with the different and faster pace of presentation and also allow the instructor to present related material (photographs, videos, etc.). The learning process is enhanced with the requirement from the student to solve relevant examples. Besides from the notes taken by students in class, all of the course material is available through the class website and also through e-learning platform. Finally the instructor is available to students during office hours or by appointment in order to provide any necessary tutoring.
Assessment methods and criteria:	<ul style="list-style-type: none"> • Coursework 50% • Final Exam 50%
Language of instruction:	English
Work placement(s):	No