UNIVERSITY of NICOSIA

Course Code	Course Title	ECTS Credits
CVEE-353	Reinforced concrete II	6
Department	**Semester**	**Prerequisites**
Engineering	Fall, Spring	CVEE-351
Type of Course	**Field**	**Language of Instruction**
Required	Civil & Environmental Engineering	English
Level of Course	**Year of Study**	**Lecturer(s)**
1st Cycle	3rd	Dr Kyriacos Neocleous
Mode of Delivery	**Work Placement**	**Co-requisites**
Face-to-face	N/A	None

Objectives of the Course:

The main objectives of the course are:

1. To explain the principles of analysis and design of reinforced concrete structures
2. The introduction to European design standards (Eurocodes)
3. To introduce the basic concepts for the design of earthquake-resistant RC structures

Learning Outcomes:

After completion of the course students are expected to:

- Get familiar with and be able to use Eurocodes (EC) for determining the design loads, safety factors and other requirements.
- Know the typical procedure for designing a RC building
- Be able to analyse a simple structural system, such as a single-storey building, and calculate the design values of the response quantities for each structural component
- Identify the critical limit state for each structural member
- Apply the principles, procedures and current code requirements to the analysis and design of reinforced concrete members
- Know, in general, the behaviour of concrete structures under seismic actions and the principles of anti-seismic design

Course Contents:

Limit states: Ultimate limit states, serviceability limit state

Actions: load combinations, load safety factors, Eurocode 1 provisions

Slabs: type of slabs, floor loads, one-way slabs, methods of analysis of two-way slabs, design of slabs for bending and shear, deflections, serviceability limit state, floor-load distribution to beams.

Analysis and design: Analysis and design of various types of RC members according to EC2 and EC8, continuous beams, short and flexural columns, role of stirrups, confinement, footings and retaining walls.

Construction detailing: technical drawing, development of reinforcement.

Introduction to earthquake-resistant design: Basic concepts of seismic design of reinforced concrete structures, ductility and brittleness, beam-column joints, role and behavior of shear walls, design of shear walls, requirements of Eurocode 8.

Seismic performance: Ductility of RC members, introduction to Non-linear analysis, behavior models

Learning Activities and Teaching Methods:

Lectures, in-class examples and exercises, Homework assignments

Assessment Methods:

Homework assignments, mid-term exam(s), final exam.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
W.H. Mosley, J.H. Bungey, R. Hulse	Reinforced Concrete Design: to Eurocode 2, 6th edition	Palgrave Macmillan	2007	978-0230500716

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Jack C. McCormac, Russell H. Brown	Design of Reinforced Concrete, 9th Edition SI Version	Wiley	2013	978-1-118-31868-3
David A. Fanella	Reinforced Concrete Structures: Analysis and Design	McGraw-Hill	2010	978-0071638340
Robert Park, Thomas Paulay	Reinforced Concrete Structures	Wiley	1975	978-0471659174