ECTS

(B) Course information in English

General course information:

Course title:	Assessment and Strengthening of Reinforced Concrete Structures	**Course code:**	**ΔΟ0500**
Credits:	5	**Work load (hours):**	163

Course level:	Undergraduate ☒	Graduate	☐
Course type:	Mandatory ☐	Selective	☒
Course category:	Basic ☐	Orientation	☒

Semester:	8^{th}	**Hours per week:**	4

Course objectives (capabilities pursued and learning results):

- Fundamental aspects of assessment and strengthening of Reinforced Concrete Structures.
- Retrofitting strategies and strengthening techniques
- Use of advanced materials in structural retrofitting applications (e.g. epoxy or cement-based composite materials)
- Development of advanced analysis skills and reinforced concrete re-design methods.

Prerequisites:

1. Reinforced Concrete Design I
2. Construction Materials

Name:	Lampros Koutas
Level:	Assistant Professor
Office:	
Tel. – email:	koutas@uth.gr
Other tutors:	-

Specific course information:

Week No.	Course contents	Hours	
		Course attendance	Preparation
1	**Part A:** Assessment of existing structures - Introduction	4	4
2	Performance levels, data reliability levels, analysis methods	4	4
3	Non-linear behaviour of RC elements	4	4
4	Non-linear behaviour of RC elements	4	4
5	Non-linear behaviour of RC elements	4	4
6	**Part B:** Retrofitting/strengthening of existing structures - Strategies	4	4
7	Strengthening with RC jackets. Infilling of RC frames	4	4
8	Strengthening with composite materials - Introduction	4	4
9	Strengthening with composite materials – Confinement for ductility increase	4	4
10	Strengthening with composite materials – Flexure	4	4
11	Strengthening with composite materials – Shear	4	4
12	New trends on strengthening techniques with composite materials	4	4
13	**Part C:** Sustainability of RC structures - Introduction	4	4
14	Sustainability of RC structures – Use of waste bi-products in concrete production	4	4

Additional hours			
Homework	**Examinations**	**Preparation for examinations**	**Educational visit**
24	3	2	-

Suggested International literature:
Ξενόγλωσση Βιβλιογραφία: 1. Reinforced Concrete Design to Eurocodes: Design Theory and Examples, P. Bhatt, T.J. MacGinley, B.S. Choo, CRC Press 2. Seismic Design, Assessment and Retrofitting of Concrete Buildings based on EN-Eurocode8, M.N. Fardis, Springer.

Teaching method *(select and describe if necessary* - **weight***):*		
Παραδόσεις	☒	65 %
Διαλέξεις	☐	-
Προβολές	☒	5 %
Εργαστήρια	☐	-
Ασκήσεις	☒	30 %
Επισκέψεις σε εγκαταστάσεις	☐	-
Άλλη *(περιγράψτε):* ……	☐	-
ΣΥΝΟΛΟ		100%

Evaluation method *(select)*- **weight:**				
	written	*%*	*Oral*	*%*
Homework	☑	25	☐	
Class project	☐		☐	
Interim examination	☐		☐	
Final examinations	☑	75	☐	
Other *(describe):*	☐		☐	