

SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Civil Engineering
1.3	Department	Structures
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	CCIA English/Engineer
1.7	Form of education	Full time
1.8	Subject code	38.00

2. Data about the subject

2.1	Subject name	Reinforced and Prestressed Concrete II										
2.2	Subject area	Civil Engineering										
2.3	Course responsible/lecturer	Lecturer phd.eng. Olar Radu – radu.olar@dst.utcluj.ro										
2.4	Teachers in charge of seminars	Dumitru Moldovan										
2.5	Year of study	3	2.6	Semester	1	2.7	Assessment	C	2.8	Subject category	DID	DOB

3. Estimated total time

3.1	Number of hours per week	6	3.2	of which, course:	3	3.3	applications:	3
3.4	Total hours in the curriculum	84	3.5	of which, course:	42	3.6	applications:	42
Individual study								30
Manual, lecture material and notes, bibliography								6
Supplementary study in the library, online and in the field								10
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								10
Tutoring								7
Exams and tests								2
<i>Other activities</i>								1
3.7	Total hours of individual study	66						
3.8	Total hours per semester	150						
3.9	Number of credit points	6.0						

4. Pre-requisites (where appropriate)

4.1	Curriculum	
4.2	Competence	The reinforced concrete part 1 knowledges.

5. Requirements (where appropriate)

5.1	For the course	
5.2	For the applications	

6. Specific competences

Professional competences	<p>The physical and mechanical properties of the concrete and reinforcements</p> <p>The ultimate and service limit states of the reinforced and prestressed concrete elements subjected to different loads</p> <p>The rules of the Eurocode 2 regarding the reinforced concrete structures calculus</p>
Cross competences	<p>- to check and design the reinforced concrete elements</p> <p>- to check and design the prestressed concrete elements</p>

7. Discipline objectives (as results from the *key competences gained*)

7.1	General objective	The proper knowledge of specific terms in the concrete design domain
7.2	Specific objectives	the construction technologies and the design methods used for reinforced and prestressed concrete elements and structures to be able to use structural and detailing softwares for the reinforced and prestressed concrete design.

8. Contents

8.1. Lecture (syllabus)		Teaching methods	Notes
1.	Resume of Reinforced and Prestresses Concrete part 1 discipline	The courses are presented both in a traditional and multimedia way, the students can interfere with questions and discussions are possible	
2.	The calculus and the design of the reinforced concrete slabs (I)		
3.	The calculus and the design of the reinforced concrete slabs (II)		
4.	The calculus and the design of the reinforced concrete slabs (III)		
5.	The calculus and the design of the reinforced concrete columns (I)		
6.	The calculus and the design of the reinforced concrete columns (II)		
7.	The calculus and the design of the reinforced concrete columns (III)		
8.	Design for Serviciability Limit States. Crack Control. Crack width. Deflection Control.		
9.	Precast and prestressed concrete. Applications and materials.		
10.	Principles of prestressing. Prestressing Methods.		
11.	The prestressing force design.		
12.	Linear analysis with limited redistribution.		
13.	Plastic analysis for beams, frames and slabs		
14.	Analysis of second order effects with axial load.		
Bibliography			
<i>In the UTC-N library</i>			
1. T. Oneț, Radu OLAR – Reinforced Concrete Handbook part.1, UT Press 2010			
2. T. Oneț, R. Olar – Beton Armat, UTPress 2003			
3. Z. Kiss, T. Oneț – Proiectarea structurilor de beton după SR – EN 1992-1, Abel 2008			
4. G. Viorel, C. Măgureanu, Z. Kiss – Îndrumător laborator, litografie IPCN, 1983			
5. C. Măgureanu, T. Oneț – Betonul, UTPres, 1996			
6. T. Oneț, T. Clipii, A. Cuciureanu – Betonul structural, Editura Societatea Academică MATEIU BOTEZ, Iași 2006			
7. I. Cadar, T. Clipii, A. Tudor – Beton Armat, Timișoara, 1999			
<i>Virtual didactic materials</i>			
1. Movies with tests on reinforced concrete elements.			

8.2. Applications/Seminars - PROJECT		Teaching methods	Notes
1.	The design of storehouse's plate and frames reinforced concrete structure (1/14)	Direct involvement of the student in the problems solving process	
2.	The design of storehouse's plate and frames reinforced concrete structure (2/14)		
3.	The design of storehouse's plate and frames reinforced concrete structure (3/14)		
4.	The design of storehouse's plate and frames reinforced concrete structure (4/14)		
5.	The design of storehouse's plate and frames reinforced concrete structure (5/14)		
6.	The design of storehouse's plate and frames reinforced concrete structure (6/14)		
7.	The design of storehouse's plate and frames reinforced concrete structure (7/14)		
8.	The design of storehouse's plate and frames reinforced concrete structure (8/14)		
9.	The design of storehouse's plate and frames reinforced concrete structure (9/14)		
10.	The design of storehouse's plate and frames reinforced concrete structure (10/14)		
11.	The design of storehouse's plate and frames reinforced concrete structure (11/14)		
12.	The design of storehouse's plate and frames reinforced concrete structure (12/14)		
13.	The design of storehouse's plate and frames reinforced concrete structure (13/14)		
14.	The design of storehouse's plate and frames reinforced concrete structure (14/14)		
Bibliography			

9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

During the semester period, visits on the construction sites can be organised in order to be presented to students practical aspects related with the execution and structural design of the structural reinforced and prestressed elements. Direct contact with the representatives of the companies are possible.

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
Course	Quality evaluations performed by analysis, synthesis, generalization of data obtained through its own investigation and acquirements	The evaluation consist in the knowledges verification, the problems solving and theory (questions), in writing (1.50 hours)	Theory + Problem (T): 60%
Applications	Project	Project	Project (P) : 40%
10.4 Minimum standard of performance: $N = 0.6 \cdot T + 0.4 \cdot P \geq 5.00$ ($P \geq 5$ and $T \geq 5$)			

Date of filling in:		Title Surname Name	Signature
09.10.2019	Lecturer	PhD.Eng. Radu OLAR	
	Teachers in charge of application	Phd.Eng. Dumitru Moldovan	

Date of approval in the department	Head of department Conf. Dr. Ing. Attila Puskás
Date of approval in the faculty	Dean Conf.dr.ing. Nicolae CHIRA

