

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	35.00

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, Horia Constantinescu									
2.5	Year of study	3	2.6	Semester	1	2.7	Assessment	C	2.8	Subject category	DID

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								14
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								10
Tutoring								7
Exams and tests								2
Other activities								3
3.7	Total hours of individual study			72				
3.8	Total hours per semester			156				
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.	The calculus and the design of the reinforced concrete plates	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 columns		
3.	The stability columns control		
4.	The tensed elements design		
5.	Prestressing methods		
6.	Materials for the prestressed concrete		
7.	The adherence and anchorage		
8.	The prestressing force design		
9.	The tension loss design		
10.	Prestressing tensile states and exterior loads to tensed prestressed elements		
11.	Prestressing tensile states and exterior loads to bended prestressed elements		
12.	Bending design for ultimate limit state		
13.	Shear design for ultimate limit state		
14.	The design of the transmission zones		
Bibliography <i>In the UTC-N library</i> <ol style="list-style-type: none"> 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> <ol style="list-style-type: none"> 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 acquirments	The evaluation consist in the knowledges verification, the problems solving and theory (questions), in writing (1.50 hours)	Project (P); Theory (T); N=0,50P+0,50T
Applications			
10.4 Minimum standard of performance			
N≥5.00 (P≥5 and T≥5)			

Date of filling in: 21.09.2016

Teachers in charge of seminars

Course responsible/lecturer:
Şef Lucrări Dr. Ing. Radu OLAR

Date of approval in the department:

Head of department:
Conf. Dr. Ing. Attila Puskás