

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Concrete Structures		Code 1010102111010113706
Field of study Civil Engineering Second-cycle Studies	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty -	Subject offered in: English	Course (compulsory, elective) obligatory
Cycle of study: Second-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: - Classes: 15 Laboratory: - Project/seminars: 15		No. of credits 2
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences		ECTS distribution (number and %) 2 100%
Responsible for subject / lecturer: dr inż. Teresa Grabiec-Mizera email: teresa.grabiec-mizera@put.poznan.pl tel. 616652085 Faculty of Civil and Environmental Engineering ul. Piotrowo 5, 60-965 Poznań		Responsible for subject / lecturer: dr inż. Piotr Frąszczak email: piotr.fraszczak@put.poznan.pl tel. 616652057 Faculty of Civil and Environmental Engineering ul. Piotrowo 5, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	A student has the knowledge of general mechanics and strength of materials, basis of theory of reinforced concrete structures, knows analysis principles of simple and complex RC elements design. A student knows building standards and requirements concerning design of building structures and their elements.
2	Skills	A student can estimate and report permanent and variable loads acting on building structures. Student can classify building structures, design RC structure elements and choose analytical or numerical solution of engineering problems.
3	Social competencies	A student understands the need for lifelong learning and knows how to interact in a group.
Assumptions and objectives of the course: -The gaining of knowledge and skills concerning design of RC slab elements (working in different way) in ULS and SLS. Analysis of building structures. Preparing for modeling of RC structures by the Autodesk Robot Structural Analysis Program.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. A student knows the basic design method of RC slab elements in RC structures. - [K 2 W02, K 2 W04, K 2 W14] 2. A student presents the design issues of spatial RC structures. - [K 2 W04, K 2 W09, K 2 W14] 3. A student knows the range applying of computers program needed to analyse and design RC structures - [K 2 W08, K 2 W16]		
Skills:		
1. He uses standards of loads on structures as well as in the calculation and dimensioning of RC structures. - [K 2 W01, K 2 W02, K 2 W03, 2 W06, K 2 W07] 2. A student is able to design RC slab structures with taken frames into consideration. - [K 2 W03, K 2 W13]		
Social competencies:		
1. A student understands the need of lifelong learning, is able to organize the learning process of others. - [K 2 W02, K 2 W03] 2. A student is able to cooperate and work in a group. - [K 2 W01, K 2 W06] 3. He correctly identifies and resolves problems associated with his profession. - [K 2 W07]		
Assessment methods of study outcomes		

<p>-Credit of exercise classes Credit in written form (1.0h) Credit of projects. Estimation of individual projects on the basis of calculations and structural drawings with a defence of submitted work Number of evaluation</p> <table border="0"> <tr> <td>[%]</td> <td>(grade)</td> </tr> <tr> <td>100- 91</td> <td>A excellent</td> </tr> <tr> <td>90- 75</td> <td>B very good</td> </tr> <tr> <td>74- 65</td> <td>C good</td> </tr> <tr> <td>64- 51</td> <td>D sufficient</td> </tr> <tr> <td>< 50</td> <td>E failed</td> </tr> </table>			[%]	(grade)	100- 91	A excellent	90- 75	B very good	74- 65	C good	64- 51	D sufficient	< 50	E failed
[%]	(grade)													
100- 91	A excellent													
90- 75	B very good													
74- 65	C good													
64- 51	D sufficient													
< 50	E failed													
Course description														
<p>-Form of teaching: classes Method of designing and dimensioning RC slab structures especially two-way reinforced slabs Load report in two-way reinforced slabs Dimensioning of reinforced concrete slab structures to bending and shear ULS, SLS. Form of teaching: projects Project of two-way reinforced slab</p>														
Basic bibliography:														
<p>1. Nilson H.A., Darwin D., Dolan w. Ch. Design Concrete Structures Mc Graw Hill Higher Education. 2004. 2. Mosley B., Bungey J., Hulse R. Reinforced Concrete Design Palgrave Macmillan. 2007.</p>														
Additional bibliography:														
Result of average student's workload														
Activity		Time (working hours)												
1. Participation in audience classes		15												
2. Participation in design classes		15												
3. Complete (at home) works involved in the project.		15												
4. Participation in the consultations associated with the audience and design classes.		5												
5. Preparing to the final test of classes content		10												
Student's workload														
Source of workload	hours	ECTS												
Total workload	60	2												
Contact hours	35	1												
Practical activities	35	1												