Civil Engineering Extramural Second-cycle         Image: Text (Image: Text (I			STUDY MODULE D	ESCRIPTION FORM			
Civil Engineering Extramural Second-cycle         (general academic, reaction)         1/2           Bit Civil Engineering Extramural Second-cycle         Subject of there in: Subject of there in: Subject of there in: Polish         Course (computiony, elective) obligatory           Second-cycle studies         part-time         No. of credits           No. of hours         part-time         No. of credits           Active:         18         Classes:         10         Laboratory:         Project/seminars:         No. of credits           Second-cycle studies         major         from field         ECTS distribution (number and hy)           Education areas and fields of science and at eactive:         a 100%         3 100%         3 100%           Responsible for subject / lecturer:         drin.         3 100%         3 100%           Responsible for subject / lecturer:         drin.         Mowledge from area of key subjects contained in educational standard of the first-cycle civil enait tomasx, water® put porana pit tel. 665-2454, 665-2457         Faculty of Civin and Environmental Engineering ul. Piotrowo 5, 80-965 Poznah           Precequisites in terms of knowledge, skills and social competencies:         Course competencies         Course construction techniques.           3         Social competencies         Designing of simpler construction buildings at the area of selected branch of civil engineering, having regard operation needs.         Cours			management				
Structural Engineering         Subject aftered in: Polish         Course (compulsary, elective) obligatory           Second-cycle studies         Form of study (fuld-ime,part-time)         No. of credits           A. of hours         part-time         No. of credits           ecture:         18         Classes:         10         Laboratory:         -         Project/seminars:         -         3           atsus of the course in the study program (Basic, major, other)         (university-wide, from another field)         Interview         3         100%           Education areas and fields of sciences         a flow,         3         100%         3         100%           Responsible for subject / lecturer:         drint:         drint:         Consecutive (Magoet (M	Field of study			(general academic, practical	)		
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No. of hours       No. of credits         Lecture:       18 Classes:       10 Laboratory:       Project/seminars:       No. of credits         Status of the course in the study program (Baic, major, other)       (university-wide, from another field)         Education areas and fields of science and art       (university-wide, from another field)         Education areas and fields of science and art       ECT status of the form field         Education areas and fields of sciences       3 100%         Technical sciences       3 100%         Responsible for subject / lecturer:       3 100%         dr in2. Tomasz Wiatr       Perejectival and Environmental Engineering         ul. Plottwo 5, 80-965 Poznań       Projectival and Environmental Engineering         Prerequisites in terms of knowledge, skills and social competencies:         1       Knowledge       Knowledge from area of key subjects contained in educational standard of the first-cycle civil engineer studies, including knowledge of construction techniques.         2       Skills       Designing of simpler construction buildings at the area of selected branch of civil engineering, having regard operation, respect for common effects of creative designing work of engineers (authorship, as a sell of teamwork).         Assumptions and objectives of the course:       Study outcomes and reference to the educational results for a field of study         No-ordege       In Project management knowledge areas rec	Cycle o	f study:		Form of study (full-time,part-time)			
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Education areas and fields of science and art       ECTS distribution (number and %)         Education areas and fields of sciences       3 100%         Technical sciences       3 100%         Responsible for subject / lecturer:       3 100%         dr in2. Tomasz Wiatr email: tomasz.Wiatr@put.poznan.pl       10.665-245, 665-2457         Faculty of Civil and Environmental Engineering       11. Piotrowo 5, 60-965 Poznań         Prerequisites in terms of knowledge, skills and social competencies:       1         1       Knowledge       Knowledge from area of key subjects contained in educational standard of the first-cycle civil engineer studies, including knowledge of construction techniques.         2       Skills       Designing of simpler construction buildings at the area of selected branch of civil engineering, having regard operation needs.         3       Social competencies       Competencies         Correctation of professional civil engineers qualifications, like a designers and managers in construction. Particular significance has integration of design and execution knowledge, specially with aid of network schedules.         Study outcomes and reference to the educational results for a field of study         Knowledge improvement about construction facilities (specific for given specialty) across structures designing and spinimization of software for project scheduling (PMS) with selected examples [K_U00]         3. Knowledge improvement about construction facilities (specific for given specialty) across structures design	Status	-		· ·			
and %)       3 100%         3 100%       3 100%         Responsible for subject / lecturer:       dr in2. Tomasz Wiatr         email: tomasz.wiatr & put poznan.pl       tel. 665-2457         Faculty of Civil and Environmental Engineering       ull. Piotowo 5, 60-965 Poznań         Prerequisites in terms of knowledge, skills and social competencies:         1       Knowledge from area of key subjects contained in educational standard of the first-cycle civil engineer studies, including knowledge of construction techniques.         2       Skills       Designing of simpler construction buildings at the area of selected branch of civil engineering, having regard operation, respect for common effects of creative designing work of engineers (authorship, as a result of teamwork).         Assumptions and objectives of the course:       Cocreation of professional civil engineers qualifications, like a designers and managers in construction. Particular significance has integration of design and execution knowledge, specially with aid of network schedules.         Study outcomes and reference to the educational results for a field of study         Knowledge:       .         1. Orogiet management knowledge areas recognition and connection of them with rest construction knowledge (elements of construction project engineering) [K_W09]         3. Knowledge improvement about construction facilities (specific for given specialty) across structures designing and optimization of model facilities (concept and details) [K_W09]         3. Classification of software for projec	Educati			II			
Technical sciences       3 100%         Responsible for subject / lecturer:       dr inż. Tomasz Wiatr email: tomasz.wiatr@put.poznan.pl         tel. 665-2467, Faculty of Civil and Environmental Engineering       ul. Piotrowo 5, 60-965 Poznań         Prerequisites in terms of knowledge, skills and social competencies:         1       Knowledge         2       Skills         3       Social competencies         2       Skills         3       Social competencies         3       Social competencies         4       Professional civil engineers studies, including knowledge of construction techniques.         2       Skills         3       Social competencies         4       Openness for cooperation, respect for common effects of creative designing work of engineers (authorship, as a result of teamwork).         Assumptions and objectives of the course:       Co-creation of professional civil engineers qualifications, like a designers and managers in construction. Particular significance has integration of design and execution knowledge, specially with aid of network schedules.         Study outcomes and reference to the educational results for a field of study         Knowledge       Project management knowledge areas recognition and connection of them with rest construction knowledge (elements of construction project engineering) [K_W10]         2. Classification and application of software for project scheduling (PM	Luucan						
Responsible for subject / lecturer:         dr inż. Tomasz Wiatr         email: tomasz.wiatr@put.poznan.pl         tel. 665-2457         Faculty of Civil and Environmental Engineering         ul. Piotrowo 5, 60-965 Poznań         Prerequisites in terms of knowledge, skills and social competencies:         1       Knowledge         engineer studies, including knowledge of construction techniques.         2       Skills         3       Social competencies         competencies       Openness for cooperation, respect for common effects of creative designing work of engineer studies, including knowledge, specially with aid of network schedules.         Study outcomes and reference to the educational results for a field of study         Knowledge:       Study outcomes and reference to the educational results for a field of study         Knowledge:       I. Project management knowledge areas recognition and connection of them with rest construction knowledge (elements of profination and application of software for project scheduling (PMS) with selected examples, - [K_W08]         8. Knowledge improvement about construction facilities (specific for given specially) across structures designing and ppinimisation of model facilities (concept and details) [K_W09]         Skills:       I. Project managements systems and understanding of specification-estimate-schedule interdependencies [K_U02]         8. Nowledge improvement about construction facilities (specific for given specially) across	techi	nical sciences			3 100%		
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email: tomasz.wiatr@put.poznan.pl         tel. 665-2445, 665-2457         Facutly of Civil and Environmental Engineering         ul. Piotrowo 5, 60-965 Poznań         Prerequisites in terms of knowledge, skills and social competencies:         1       Knowledge         2       Skills         2       Skills         3       Designing of simpler construction buildings at the area of selected branch of civil engineering, having regard operation needs.         3       Social competencies         Openness for cooperation, respect for common effects of creative designing work of engineers (autorship, as a result of teamwork).         Assumptions and objectives of the course:         Co-creation of professional civil engineers qualifications, like a designers and managers in construction. Particular significance has integration of design and execution knowledge, specially with aid of network schedules.         Study outcomes and reference to the educational results for a field of study         Knowledge:         1. Project management knowledge areas recognition and connection of them with rest construction knowledge (elements of construction project engineering) [K_W08]         3. Kowledge improvement about construction facilities (specific for given specialty) across structures designing and pptimisation of model facilities (concept and details) [K_W09]         Skills:         1. Project managements systems and understanding of specification-estimate-schedule interde	Resp	onsible for subj	ect / lecturer:				
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Skills:         1. Project managements systems and understanding of specification-estimate-schedule interdependencies [K_U02]         2. Project information structures for purposes of construction planning and scheduling with aid of software - [K_U10]         3. Ability od documentation preparation for procurement purposes (specifications, programming) - [K_U12]         Social competencies:         1. Overall look at project from the recipient (user/orderer/investor) and environment point of view in the aspect of whole life cycle of facility (construction-operation-deconstruction) [K_K04]         2. Competences for project teamwork (sense of common goal and role of communication and motivation) with taking of other project participants needs (coworkers, cooperants, stakeholders) [K_K05]         3. Readiness for engage in the professional practice towards independent technical functions with taking of society needs	3. Knowledge improvement about construction facilities (specific for given specialty) across structures designing and optimisation of model facilities (concept and details) - [K W09]						
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project participants needs (coworkers, cooperants, stakeholders) [K_K05] 3. Readiness for engage in the professional practice towards independent technical functions with taking of society needs					new in the aspect of whole life		
					d motivation) with taking of other		
				ndependent technical functions	with taking of society needs		

## Assessment methods of study outcomes

Base of lecture note is writing test contained up to 10 issues (short tasks of calculate-, describe-, indicate- type) with over 5 fully correct answers; base of laboratories note is project elaboration.

### **Course description**

Lecture: review of project management knowledge areas in construction; financial, procurement, payment and delivery systems of investment projects; formal and law procedures; project design, pre-tender and post-completition documentation (designing as project planing); methods of project planning and control (products, processes, resources), computer systems operating rules, practical tips.

### **Basic bibliography:**

1. Pawlak M., Zarządzanie projektami. Wydawnictwo Naukowe PWN, Warszawa 2006.

- 2. Behnke M., Czajka-Marchlewicz B., Dorska P., Umowy w procesie budowlanym. Wolters Kluwer, Warszawa 2011.
- 3. Praca zbiorowa. Podręcznik dla inwestorów przedsięwzięć infrastrukturalnych. MRR, Warszawa 2010.

#### Additional bibliography:

1. Hendrickson C., Project Management for Construction. Fundamentals Concepts for Owners, Engineers, Architects and Builders. Carnegie Mellon University, Pittsburgh 2008.

2. O-Brien J., Plotnick F., CPM in Construction Management. 6th Edition. McGraw-Hill, 2006.

3. Winch G. M., Managing Construction Projects. Blackwell Publishing, 2002.

# Result of average student's workload

Activity	Time (working hours)		
1. Classes participation		45	
2. Works preparation	20		
3. Computer work		30	
4. Works finishing	10		
Student's workload			
Source of workload	hours	ECTS	
Total workload	90	3	
Contact hours	45	1	
Practical activities	75	2	