Warsaw University of Technology

COURSE OFFERED IN THE DOCTORAL SCHOOL

Code of the course	4606-ES-0000AFM-0168	Name of the course	Polish	Zarządzanie projektem budowlanym
			English	Management of construction project
Type of the course	specialty lectures			
Course coordinator	Eryk Głodziński	Course teacher	Eryk Głodziński (WZ), Michał Krzemiński (WIL), Jerzy Rosłon (WIL), Hubert Anysz (WIL),	
Implementing unit	Faculty of Management, Faculty of Civil Engineering	Dyscyplina naukowowa	Nauki o Zarządzaniu i Jakości, Inżynieria Lądowa Geodezja i Transport, Architektura I Urbanistyka	

Level of education	Doctoral studies	Semester	spring		
Language of the course	English				
Type of assessment	Evaluation of workshops' achievements Zal.	Number of hours in a semester	45	ECTS credits	3
Minimum number of participants	10	Maximum number of participants	16	Available for students (BSc, MSc)	Yes/~~No~~

Type of classes		Lecture	Auditory classes	Project classes	Laboratory	Seminar
Number of hours	in a week	1	2			
	in a semester	15	30			

* does not apply to the Researcher's Workshop

1. Prerequisites

Fundamentals of project management

2. Course objectives

The main objective of the course is to gain technical and soft skills related to management of construction projects, including to gain the skills related to: role of project manager or site manager, scheduling, recognition of risk, cost&revenue calculations, monitoring percentage of completion etc.

3. Course content (separate for each type of classes)

Lecture

1.1. Introduction, course organizational issues and requirements
1.2. Revision of knowledge related to Project Management
1.3. Description of construction project peculiarities
2. Project management principles and knowledge areas - Construction Extension to the PMBOK Guide and other standards, contract administration and procurement
3. IT supporting construction project management
4. Network modelling in construction
5. Construction scheduling
6. Construction schedule optimization
7. Construction risk management
8. Risk identification
9. Qualitative risk analysis
10. Quantitative risk analysis
11. Direct cost calculation
12. Indirect cost calculation

13. Calculation of percentage of completion, works certification, combining cost calculation with construction site scheduling
14. Cash flow management and other financial issues
15. Conclusions, final remarks

Auditory classes

1. Construction project peculiarities
2. Project charter
3. Stakeholders analysis
4. Network modelling in construction
5. Construction scheduling
6. Construction schedule optimization
7. Construction risk management
8. Risk identification
9. Qualitative risk analysis
10. Quantitative risk analysis
11. Direct cost calculation
12. Indirect cost calculation
13. Project performance (calculation of percentage of completion, works certification, combining cost calculation with construction site scheduling)
14. Cash flow management and other financial issues
15. Conclusions, final remarks

4. Learning outcomes

Type of learning outcomes	Learning outcomes description	Reference to the learning outcomes of the WUT DS	Learning outcomes verification methods*
Knowledge			
K01	He has structured knowledge in the field of construction project management, to the extent that allows the revision of existing paradigms in this area	SD_W2	Activity during classes, results of workshops
K02	Has structured knowledge in the field of modern project management concepts, knows the fundamental dilemmas of modern civilization and design in the field of construction projects, knows the essential conditions of research activity, including economic or ethical	SD_W4	Activity during classes, results of workshops
K03	Has structured knowledge in the field of relationships between management sciences and civil engineering and transport with other scientific disciplines, knows the main development trends regarding methods and techniques supporting work in these areas	SD_W3	Activity during classes, results of workshops
Skills			
S01	Can use knowledge from various fields of science to creatively identify, formulate and innovatively solve complex problems or perform research tasks, and then disseminate the results of scientific activity	SD_U1	Activity during classes, results of workshops

S02	Can use the principles of management and organizational approaches to organize their own activities, initiate a debate and participate in scientific discourse in the field of management of construction projects	SD_U8	Activity during classes, results of workshops
Social competences			
SC01	Understands the importance of interdisciplinarity in science, the need for a critical assessment of achievements, including knowledge in the represented and related disciplines	SD_K1	Activity during classes, results of workshops

*Allowed learning outcomes verification methods: exam; oral exam; written test; oral test; project evaluation; report evaluation; presentation evaluation; active participation during classes; homework; tests

5. Assessment criteria
Lecture – test from knowledge, active participation during the meeting **Workshop (Auditory classes) –** achievements from workshops **Final degree** – 0,3 * lecture + 0,7 * workshop Participation in min. 8 meetings is required.

6. Literature
Primary references:
[1] Harris, F., & McCaffer, R. (2013). Modern construction management. John Wiley & Sons.
[2] PMI, (2016). Construction Extension to the PMBOK Guide.
[3] Teixeira H., Kulejewski J., Krzemiński M., Zawistowski J. (2011). Risk management in construction, BMB IL, Warsaw
Secondary references:
Automation in Construction https://www.journals.elsevier.com/automation-in-construction
Archives of Civil Engineering https://ace.il.pw.edu.pl/,
Construction Management and Economics https://www.tandfonline.com/toc/rcme20/current
International Journal of Managing Project in Business https://www.emerald.com/insight/publication/issn/1753-8378
International Journal of Project Management https://www.journals.elsevier.com/international-journal-of-project-management
Journal of Civil Engineering and Management https://journals.vgtu.lt/index.php/JCEM
Journal of Construction Engineering and Management https://ascelibrary.org/journal/jcemd4
Project Management Journal https://journals.sagepub.com/home/pmx

7. PhD student's workload necessary to achieve the learning outcomes**		
No.	Description	Number of hours
1	Hours of scheduled instruction given by the academic teacher in the classroom	45
2	Hours of consultations with the academic teacher, exams, tests, etc.	5
3	Amount of time devoted to the preparation for classes, preparation of presentations, reports, projects, homework	30
4	Amount of time devoted to the preparation for exams, test, assessments	10
	Total number of hours	**90**

ECTS credits	**3**

** 1 ECTS = 25-30 hours of the PhD students work (2 ECTS = 60 hours; 4 ECTS = 110 hours, etc.)

8. Additional information	
Number of ECTS credits for classes requiring direct participation of academic teachers	2
Number of ECTS credits earned by a student in a practical course	1