

Course code: .....

Plan position: .....

### A. INFORMATION ABOUT THE COURSE

#### B. Basic information

Name of course	PROJECT AND CONSTRUCTION MANAGEMENT
Field of studies	Civil Engineering
Level of studies	Bachelor's degree
Profile of studies	
Form of studies	
Specialty	
Unit responsible for the field of studies	Faculty of Civil and Environmental Engineering, and Architecture
Name and academic degree of teacher(s)	Jarosław Górecki, PhD
Introductory courses	
Introductory requirements	

#### C. Semester/week schedule of classes

Semester	Lectures (W)	Auditorium classes (Ć)	Laboratory classes (L)	Project classes (P)	Seminar (S)	Field classes (T)	Number of ECTS points
Fall (I)	30						6

## 2. LEARNING OUTCOME

No.	Learning outcomes description	The reference to the learning outcomes of specific field of study	The reference to the learning outcomes for the area
<b>KNOWLEDGE</b>			
W1	has structured and theoretically based knowledge in the field of social, economic, legal and administrative conditions of construction projects, necessary to understand the investment process at its various stages, management of the investment process (including the formulation and negotiation of construction contracts), forms of entrepreneurship		
<b>SKILLS</b>			
U1	is able to identify threats and assess risks related to the functioning of business organizations and construction projects, is able to be hired in a construction company at the management level		

U2	is able to perceive their non-technical aspects, including environmental, economic and legal issues		
<b>SOCIAL COMPETENCES</b>			
K1	is aware of the importance and understands the non-technical aspects and effects of a civil engineer's activity, including its impact on the environment and the related responsibility for decision making process		
K2	can think and act in an entrepreneurial and rational way		

### 3. TEACHING METHODS

#### A. Traditional methods used \*\*\*

Lecture, interactive lecture and directed discussion

#### B. Distance learning methods used \*\*\*

**Synchronous method** (classes conducted in a way that ensures direct interaction between the student and the teacher in real time, enabling immediate flow of information, the method can be used only if it is provided for in the study plan for a given cycle of education):  
e.g. remote lecture in the form of videoconference, remote discussion, etc.

**Asynchronous method** used as an auxiliary (a method that does not ensure direct interaction between the student and the teacher in real time, used only as an auxiliary / complementary method):  
e.g. online educational videos, online multimedia presentations, etc.

### 4. METHODS OF EXAMINATION

Final test, one (1) presentation

### 5. SCOPE

Lectures	<p><b>BASIC CONCEPTS RELATED TO PROJECT MANAGEMENT</b></p> <ul style="list-style-type: none"> <li>• Basic rules connected with scheduling – main organizational methods (task by task, in parallel, etc.).</li> <li>• Work breakdown structure (WBS) – basics and rules.</li> <li>• Basic types of constrains, establishing start and finish dates, deadline dates etc.</li> <li>• Scheduling of the simple construction projects with the application of WBS.</li> <li>• Application of a dynamic programming in the scheduling tasks of the renewable resources.</li> <li>• An example of the time analysis by the use of the network diagram with the availability of resources.</li> <li>• Heuristic algorithms of the resource allocation for the implementation of construction projects.</li> <li>• Schedules and network diagrams.</li> <li>• Critical Path Method (CPM),</li> <li>• Program Evaluation and Review Technique (PERT), and Graphical Evaluation and Review Technique (GERT)</li> </ul> <p><b>SUSTAINABILITY</b></p> <ul style="list-style-type: none"> <li>• Current challenges for a construction project</li> <li>• Recent trends in sustainable construction projects</li> <li>• Circular Economy in a construction project</li> </ul>
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## 6. METHODS OF VERIFICATION OF LEARNING OUTCOMES

LEARNING OUTCOME	Form of assessment					
	Oral examination	Written exam	Colloquium	Project	Presentation	-
W1			x			
W2			x			
U1			x			
U2			x			
K1					x	
K2					x	

## 7. LITERATURE

Basic literature	<ul style="list-style-type: none"> <li>• Risk Management Treatise for Engineering Practitioners, Ed. Chike Oduoza, IntechOpen, London, 2018</li> <li>• Sears S.K., Sears G.A., Clough R.H., Construction Project Management: A Practical Guide to Field Construction Management, John Wiley &amp; Sons, 2010</li> <li>• Harry T. Roman, "Project Management," in Project Management, IEEE, 2016.</li> <li>• Bizon-Górecka J., Modelling the structure of the risk management system in the enterprise – holistic perspective, Bydgoszcz 2009.</li> <li>• Nickels W.G., McHugh J., McHugh S., Understanding Business, McGraw-Hill/Irwin; 8 edition, 2006.</li> <li>• Stoner J. A.F., Wankel Ch., Management, Prentice Hall 1986.</li> <li>• Hutchings J.F., Project Scheduling Handbook, Marcel Dekker, 2004</li> <li>• Levy J.D., Wiest F.K., A management guide to PERT/CPM : with GERT/PDM/DCPM and other networks, Prentice-Hall (1977)</li> <li>• Sears S.K., Sears G.A., Clough R.H., Construction Project Management: A Practical Guide to Field Construction Management, John Wiley &amp; Sons, 2010</li> </ul>
Supplementary literature	<ul style="list-style-type: none"> <li>• Wideman R. M. 2000. First Principles of Project Management. AEW Services, Vancouver, BC Corporation</li> <li>• Marchman D.A., Anderson T.L., Construction Scheduling With Primavera Enterprise, Delmar, 2003</li> <li>• Scopus – selected articles</li> <li>• Web of Science – selected articles</li> </ul>

## 8. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload– number of hours
Classes conducted under a direct supervision of an academic teacher or other persons responsible for classes	Participation in classes indicated in point 1B	30
	Supervision hours	10
Student's own work	Preparation for classes	40
	Reading assignments	50
	Other (preparation for exams, tests, carrying out a project etc)	50

Total student workload	180
Number of ECTS points	6