



## Subject card

Subject name and code	Management and economic of engineer projects, PG_00059661						
Field of study	Mechanical Engineering, Mechanical Engineering						
Date of commencement of studies	October 2020		Academic year of realisation of subject		2023/2024		
Education level	first-cycle studies		Subject group				
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	4		Language of instruction		English		
Semester of study	7		ECTS credits		2.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Zakład Technologii Maszyn i Automatyzacji Produkcji -> Institute of Manufacturing and Materials Technology -> Faculty of Mechanical Engineering and Ship Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr hab. inż. Agnieszka Ossowska				
	Teachers		dr hab. inż. Agnieszka Ossowska				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	15.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
Learning activity and number of study hours	Learning activity	Participation in didactic classes included in study plan		Participation in consultation hours		Self-study	SUM
	Number of study hours	30		0.0		0.0	30
Subject objectives	The aim of the course is to acquaint students with modern methods of project management, supervision of them for the use of practical tools for project management and the achievement of the business objectives of the project. The issues of strategic project management, financial aspects of project management, organization and planning of the project, methods of team management and communication in project management are discussed during the course. The course should prepare students for effective participation in the team projects.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K6_K02] understands ex-technical aspects of the activities included in the profession of a mechanical engineer, among others its social impact and influence on the condition of an environment; is aware of the responsibility connected with the decisions made in connection with engineering activity	The student has knowledge of the prospects for the development of facilities and equipment of ocean and understand the new, the most important achievements in the field of Ocean. The student has extensive knowledge in the natural sciences possible an assessment of the design objects interact with their surroundings.	[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice [SK4] Assessment of communication skills, including language correctness
	K6_W12	The student has knowledge of copyright and copyright protection law in Europe. The student identifies the types of protected works and the scope of copyright protection. The student has a basic knowledge of the protection of patents and trademarks in the legal system. The student learns remedies under the copyright protection law. The student learns the basic legal definitions used in intellectual property law.	[SW2] Assessment of knowledge contained in presentation [SW1] Assessment of factual knowledge
	[K6_K01] is aware of the need for complementing the knowledge throughout the whole life, is able to select proper methods of teaching and learning, critically assesses the possessed knowledge; is aware of the importance of professional conduct and following the rules of professional ethics; is able to show resourcefulness and innovation in the realisation of professional projects	The student correctly identifies and resolves the dilemmas related to the profession of an engineer, performs risk assessment and is able to assess the effects of the activities performed in the field of the engineering profession. The student is also aware of his own limitations and knows when to turn to the experts.	[SK1] Assessment of group work skills [SK5] Assessment of ability to solve problems that arise in practice [SK3] Assessment of ability to organize work
Subject contents	1. Engineering Economic: Establishing Economic Equivalence, Interest: The cost of money, the elements of transactions, involving interest, equivalence calculations, interest formulas, nominal and effective interest rates, loss of purchasing power. 2. Measures of Project Worth: describing project cash flows, present worth analysis, annual equivalent method, rate of return analysis, accept/reject decision rules, mutually exclusive alternatives. 3. Cash and Flow Projections: operating profit - net income, tax treatment, effects of inflation. 4. Sensitivity and Risk Analysis: project risk, risk analysis, expected value and variance, decision rule. 5. Design Economics: capital costs vs. operating costs, minimum-cost function 6. Project management: Engineers, projects, management, planning and scheduling, staffing and organizing, team building, project control, estimation and contracting. 7. Team building: types of personality, effectiveness of the team. 8. Project Management: WBS, Gantt, Earned Value Method, Critical Path Method, risk management.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Final works of the practice part	60.0%	50.0%
	Written credit in the lecture part	60.0%	50.0%
Recommended reading	Basic literature	1. Chatterjee Rupak, Practical Methods of Financial Engineering and Risk Management Tools for Modern Financial Professionals, APress 2014 2. Robert Kosowski, Salih N. Neftci, Principles of Financial Engineering, Elsevier Books, 2014 3. Cook Jain, Financial Management Practices, Springer-Verlag GmbH 2013 4. Crundwell Frank, Finance for Engineers, Springer London Ltd., 2010 5. Peterson, S. J. Construction Accounting and Financial Management, Prentice Hall, New York, 2004. 6. Palmer, W., Palmer, W. J., Coombs, W. E. and Smith, K. A., Construction Accounting and Financial Management, McGraw Hill, New York, 1999. 7. Pilcher, R., Principles of Construction Management, McGraw-Hill, 1992. 8. Gibson, C. H., Financial Statement Analysis International Thomson Publishing, 1998. 9. Brigham, E. F., Gapenski, L. C. and Erhardt, M. C., Financial Management: Theory and Practice, The Dryden Press, 1999. 10. PMBOK	

	Supplementary literature	<p>1. Dell'Isola, A. Value Engineering: Practical Applications for Design, Construction, Maintenance and Operations, MRS. Means Company Ltd, 1997.</p> <p>2. Kelly, J., Male, S. and Graham, D. Value Management of Construction Projects Blackwell Sciences, 2004.</p> <p>3. Parker, D. E., Management Application of Value Engineering: For Business and Government, The Value Foundation, Washington D.C., 1994.</p> <p>4. Kumar, S., Value Engineering: A Fast Track to Profit Improvement and Business Excellence, Narosa Publishing House, 2004.</p> <p>5. Barrie, D. S. and Paulson, B. C., Professional Construction Management, McGraw-Hill, 1992.</p>
	eResources addresses	<p>Adresy na platformie eNauzanie:</p> <p>Management and economic of engineer projects - Moodle ID: 34336  <a href="https://enauzanie.pg.edu.pl/moodle/course/view.php?id=34336">https://enauzanie.pg.edu.pl/moodle/course/view.php?id=34336</a></p>
Example issues/ example questions/ tasks being completed	<p>1. Team Building: Personality Types, Team Effectiveness.</p> <p>2. Project management: WBS, Gantt, Earned Value Method, Networks type 1 &amp; 2 (Critical Path Method).</p> <p>3. Risk management.</p>	
Work placement	Not applicable	