



Subject card

Subject name and code	Business process analysis and optimization, PG_00045372						
Field of study	Data Engineering						
Date of commencement of studies	October 2025		Academic year of realisation of subject		2027/2028		
Education level	first-cycle studies		Subject group		Optional subject group Subject group related to scientific research in the field of study		
Mode of study	Full-time studies		Mode of delivery		at the university		
Year of study	3		Language of instruction		English		
Semester of study	5		ECTS credits		4.0		
Learning profile	general academic profile		Assessment form		assessment		
Conducting unit	Department of Management -> Faculty of Management and Economics						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marzena Grzesiak				
	Teachers		dr inż. Marzena Grzesiak				
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45		5.0		50.0	100
Subject objectives	The aim of the course is to acquaint students with the basics of business process modeling using standard notation, analysis and optimization.						
Learning outcomes	Course outcome		Subject outcome		Method of verification		
	[K6_U01] analyzes and evaluates complex processes in the context of their improvement possibilities, using various methods, including analytical and simulation		The student can analyze a selected process using simulation methods and recommend directions for improvement.		[SU3] Assessment of ability to use knowledge gained from the subject [SU4] Assessment of ability to use methods and tools		
	[K6_W05] integrates data from multiple sources in order to analyze complex business problems		The student knows where to obtain knowledge to analyze a selected business process.		[SW3] Assessment of knowledge contained in written work and projects		
	[K6_W07] analyzes business processes in an advanced way in the technical, legal, economic, financial and social context		The student knows how to analyze a selected business process, taking into account the context.		[SW3] Assessment of knowledge contained in written work and projects		

Subject contents	<p>LECTURE:</p> <p>Basic issues and definitions for the analysis and optimization of processes. Process architecture - reference model for process classification (PCF) + example. No-code tools. Quantitative process analysis + example. Qualitative process analysis + example. Managerial / analytical cockpit + example. Methods of process improvement and optimization + example. Big data and process analysis + example. Implementation of process automation. Designing activities and data models in processes. Decision rules and their implementation. Integration with other systems.</p> <p>LAB:</p> <p>Creative observation of reality to identify processes that the student is a stakeholder, performer or owner. Individual realization of a simulation model using iGrafx and BPMN, based on skills acquired in the preceding semester within the subject <i>Business Process Modelling</i>. Simulations, tests and analyzes in order to optimize the process. Process description. Defense of realized task.</p> <p>Preparing the process model and documentation wuthe the no-code tool.</p>		
Prerequisites and co-requisites	Finished Business process modeling course.		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Excercises classes	56.0%	26.0%
	Project	56.0%	40.0%
	Final test	56.0%	34.0%
Recommended reading	Basic literature	Dumas M., La Rosa M., Mendling J., Reijers H.A. (2013, 2018), Fundamentals of Business Process Management, Springer-Verlag GmbH Germany vom Brocke J., Rosemann M. (eds.) (2015): Handbook on Business Process Management 1, Springer- Heidelberg New York Dordrecht London vom Brocke J., Rosemann M. (eds.) (2015): Handbook on Business Process Management 2, Springer- Heidelberg New York Dordrecht London	
	Supplementary literature	Drejewicz Sz., Zrozumieć BPMN. Modelowanie procesów biznesowych, Wydawnictwo Helion, Gliwice 2012.	
		Piotrowski M., Procesy biznesowe w praktyce. Projektowanie, testowanie i optymalizacja, Wydawnictwo Helion, Gliwice 2013.	
		Gawin B., Marcinkowski B., Symulacja procesów biznesowych. Standardy BPMS i BPMN w praktyce , Wydawnictwo Helion, Gliwice 2014.	
		Gawin B., Systemy informatyczne w zarządzaniu procesami Workflow, Wydawnictwo Naukowe PWN, Warszawa 2015.	
		Misiak Z.: Modelowanie procesów biznesowych. BPMN 2.0 od podstaw, Onepress, 2023	
		Research and theory papers	
	eResources addresses	Adresy na platformie eNauczanie:	
Example issues/ example questions/ tasks being completed	1) Indicate the areas of application of business process analysis.		
	2) Indicate ways to improve the business process. Give examples		
	3) Discuss the use of a manager cockpit for business process analysis		

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