



Subject card

Subject name and code	Business process analysis and optimization, PG_00045372						
Field of study	Data Engineering						
Date of commencement of studies	October 2023	Academic year of realisation of subject			2025/2026		
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			blended-learning		
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 -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor		dr inż. Marzena Grzesiak				
	Teachers		dr inż. Marzena Grzesiak				
Lesson types	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: 20.0						
	eNauczanie source addresses: Moodle ID: 46176 Business Process Analysis and Optimization 2025 <a href="https://enauzanie.pg.edu.pl/moodle/course/view.php?id=46176">https://enauzanie.pg.edu.pl/moodle/course/view.php?id=46176</a>						
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	To prepare students to analyse and optimise business processes (practical skills: applying modelling methods, quantitative techniques and IT tools) based on knowledge of process management and organisational engineering, and to develop critical thinking, teamwork and ethical responsibility in the context of improving organisational performance.						
Learning outcomes	Course outcome	Subject outcome		Method of verification			
	[K6_K05] understands the need for self-improvement through systematic acquisition of knowledge and skills.	is ready to collaborate and take responsibility for ethical and effective improvements, in particular through teamwork, constructive feedback and reflective self-assessment		[SK2] Assessment of progress of work [SK1] Assessment of group work skills			
	[K6_U06] Independently solves complex engineering tasks using literature, materials and devices, prepares extensive documentation of the developed solution using appropriate description techniques.	is able to analyse and optimise a process, applying quantitative methods/tools to solve a problem, and produce complete technical documentation of results and conclusions		[SU1] Assessment of task fulfilment [SU4] Assessment of ability to use methods and tools			
	[K6_W01] has advanced knowledge in the field of mathematics, including mathematical analysis, algebra, geometry, probability calculus, statistics and numerical methods, necessary to formulate and solve simple tasks in the field of IT	knows and understands quantitative methods of business process analysis and optimisation in the context of identifying problems, selecting KPIs and designing improvements with engineering tools		[SW1] Assessment of factual knowledge			

Subject contents	<p>Course content – 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>Course content – laboratory</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
	Project (group) implementation (process analysis + optimisation with BPMN models)	56.0%	33.0%
	Coursework milestones (short tasks checking use of tools)	56.0%	20.0%
	Test with open and closed questions	60.0%	34.0%
	Documentation for prototype (clarity, completeness, justification)	60.0%	6.0%
	Application prototype (hackathon deliverable, proof-of-concept)	60.0%	7.0%
Recommended reading	Basic literature	<p>Dumas M., La Rosa M., Mendling J., Reijers H.A. (2013, 2018), <i>Fundamentals of Business Process Management</i>, Springer-Verlag GmbH Germany</p> <p>vom Brocke J., Rosemann M. (eds.) (2015): <i>Handbook on Business Process Management 1</i>, Springer- Heidelberg New York Dordrecht London</p> <p>vom Brocke J., Rosemann M. (eds.) (2015): <i>Handbook on Business Process Management 2</i>, Springer- Heidelberg New York Dordrecht London</p>	
	Supplementary literature	<p>Davenport T.H., Harris J.G.: <i>Competing on Analytics: Updated with a New Introduction</i></p> <p>The New Science of Winning, 2017</p> <p>Albright S.C., Winston W.L.: <i>Business Analytics: Data Analysis and Decision Making with MindTap</i>, 7th Edition, 2022</p> <p>Research and theory papers</p>	
	eResources addresses		
Example issues/ example questions/ tasks being completed	<p>1) Indicate the areas of application of business process analysis.</p> <p>2) Indicate ways to improve the business process. Give examples</p> <p>3) Discuss the use of a manager cockpit for business process analysis</p>		
Practical activites within the subject	Not applicable		

Document generated electronically. Does not require a seal or signature.