GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Business process analysis and optimization, PG_00045372		
Field of study	Business process analysis and optimization		
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 -> Wydziały Politechniki Gdańskiej		
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
https://enauczanie.pg.edu.pl/moodle/course/view.php?id=46176

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_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] Ocena wiedzy faktograficznej
[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	[SU4] Ocena umiejętności korzystania z metod i narzędzi [SU1] Ocena realizacji zadania
[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	[SK1] Ocena umiejętności pracy w grupie [SK2] Ocena postępów pracy

Subject contents	Course content – lecture 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. Course content – laboratory 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 *Business Process Modelling.*. Simulations, tests and analyzes in order to optimize the process. Process description. Defense of realized task. Preparing the process model and documentation wuthe the no-code tool.
Prerequisites and co-requisites	Finished Business process modeling course.
Assessment methods and criteria	see table below

Subject passing criteria	Passing threshold	Percentage of the final grade
Documentation for prototype (clarity, completeness, justification)	60.0%	6.0%
Application prototype (hackathon deliverable, proof-of-concept)	60.0%	7.0%
Test with open and closed questions	60.0%	34.0%
Coursework milestones (short tasks checking use of tools)	56.0%	20.0%
Project (group) implementation (process analysis + optimisation with BPMN models)	56.0%	33.0%

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	Davenport T.H., Harris J.G.: Competing on Analytics: Updated with a New Introduction The New Science of Winning, 2017 Albright S.C., Winston W.L.: Business Analytics: Data Analysis and Decision Making with MindTap, 7th Edition, 2022 Research and theory papers
	eResources addresses	

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
Practical activites within the subject	Not applicable

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