GDAŃSK UNIVERSITY OF TECHNOLOGY

Subject card

Subject name and code	Expert Systems in Business, PG_00067795		
Field of study	Economic Analytics		
Date of commencement of studies	October 2025	Academic year of realisation of subject	2027/2028
Education level	first-cycle studies	Subject group	Obligatory subject group in the field of study 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	Polish
Semester of study	6	ECTS credits	3.0
Learning profile	general academic profile	Assessment form	exam
Conducting unit	Department Of Informatics In Management -> Faculty Of Management And Economics -> Wydziały Politechniki Gdańskiej		
Name and surname of lecturer (lecturers)	Subject supervisor		
	Teachers		

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	25.0	75

Subject objectives

Uses expert systems supporting decision-making processes, designing solutions using inference mechanisms and knowledge bases

Learning outcomes

Course outcome	Subject outcome	Method of verification
[K6_W02] possesses advanced knowledge of methods and techniques that enable precise formulation and effective problem solving.	identifies quantitative methods and information technologies appropriate to support the analysis of economic phenomena	[SW3] Assessment of knowledge contained in written work and projects [SW2] Assessment of knowledge contained in presentation
[K6_U07] uses advanced information technologies to enhance data analysis and decision-making processes.	uses IT tools adequate to solve contemporary economic problems, including supporting decision-making processes	[SU5] Assessment of ability to present the results of task [SU4] Assessment of ability to use methods and tools [SU2] Assessment of ability to analyse information

Subject contents

Introducing to expert systems - definition of basic concepts: data, information, knowledge, knowledge formalization; expert systems - classification, applications, construction and examples.
Creation of expert systems - reasons, stages of design, types, advantages and disadvantages, acquiring knowledge; structure of the expert system - overview of components (knowledge base, inference machine, explanatory module, user interface).
Knowledge representation - knowledge acquisition process, knowledge base, representation methods, knowledge representation languages.
Complex methods of knowledge representation - semantic networks, predicates and resolution method, frames, neural networks, fuzzy sets and fuzzy logic, genetic algorithms, evolutionary programming, scenarios, the Delphi method.
Information technologies supporting the construction of expert systems programming languages in logic - Prolog.
Designing a simple rule-based expert system - market analysis, concept, knowledge base, project schedule, business case.

Prerequisites and co-requisites

Assessment methods and criteria

Subject passing criteria	Passing threshold	Percentage of the final grade
laboratory	60.0%	80.0%
exam in the form of a test	60.0%	20.0%

Recommended reading	Basic literature	Michalik, K. (2014). Systemy ekspertowe we wspomaganiu procesów zarządzania wiedza w organizacji. Katowice: Wydawnictwo Uniwersytetu Ekonomicznego w Katowicach. Niederliński, A. (2006). Regułowo-modelowe systemy ekspertowe rmse, Gliwice: Wydawnictwo Pracowni Komputerowej Jacka Skalmierskiego. Wakulicz-Deja, A., Nowak-Brzezińska, A., Przybyła-Kasperek, M., Simiński, R. (2018). Systemy ekspertowe. Warszawa: Akademicka Oficyna Wydawnicza EXIT,
	Supplementary literature	none
	eResources addresses	Adresy na platformie eNauczanie:
Example issues/ example questions/ tasks being completed	Types of expert systems Selected ways of knowledge representation Stages of creating an expert system	
Work placement	Not applicable	

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