



## Subject card

Subject name and code	INFORMATION AND KNOWLEDGE MANAGEMENT, PG_00037862						
Field of study	Management						
Date of commencement of studies	October 2022	Academic year of realisation of subject			2023/2024		
Education level	second-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	2	Language of instruction			English		
Semester of study	3	ECTS credits			3.0		
Learning profile	general academic profile	Assessment form			exam		
Conducting unit	Department of Management -> Faculty of Management and Economics						
Name and surname of lecturer (lecturers)	Subject supervisor	prof. dr hab. inż. Edward Szczerbicki					
	Teachers	prof. dr hab. inż. Edward Szczerbicki					
Lesson types and methods of instruction	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	30.0	0.0	0.0	0.0	0.0	30
	E-learning hours included: 0.0						
INFORMATION AND KNOWLEDGE MANAGEMENT 2023/24 - Moodle ID: 29875 <a href="https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29875">https://enauczanie.pg.edu.pl/moodle/course/view.php?id=29875</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	30	8.0	37.0	75		
Subject objectives	The main aim of this course is to introduce the participants to the most recent, global trends in the field of management and engineering of information and knowledge in our current society embedded in semantic networks and intelligent knowledge-based systems. To achieve this aim the lecture introduces smart Artificial Intelligence (AI) systems, tools and technologies used to model, represent, and formalise information and knowledge, together with a number of case studies implementing these technologies in real life organisations, companies, and firms.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W03] has a broadened knowledge of the sciences of management and economics, including the evolution of the various types of structures and institutions and the links between them	Ability to analyse the state of organisation regarding systems and approaches to information and knowledge management. Selects the best management concept of management evolution within a company taking into account the nature of relations with external and internal environment.	[SW1] Assessment of factual knowledge
	[K7_U12] applies selected theoretical management concepts in the management of the organisation	Ability to choose appropriate management concept	[SU3] Assessment of ability to use knowledge gained from the subject
	[K7_U10] uses appropriate methods and techniques to support the decision-making process to solve problems occurring in livestock units	Learns and is able to integrate for the purpose of managerial support various disciplines such as mathematics, systems science, artificial intelligence, and soft modelling	[SU4] Assessment of ability to use methods and tools
	[K7_K01] understands the need to update knowledge and self-improvement	Ability to analyse and choose appropriate concepts of knowledge and information management	[SK5] Assessment of ability to solve problems that arise in practice
	[K7_U08] can improve oneself through systematic acquisition of knowledge and skills.	Learns and is able to use a number of classical and modern management tools, IT tools, and simulation models together with their role in creating and understanding the holistic picture of organisation and the ability of its management	[SU2] Assessment of ability to analyse information
Subject contents	LECTURE: Modern intelligent knowledge-based systems; The role of experience in the process of formalization and representation of information and knowledge; Artificial Intelligence (AI) methods and technologies in modern smart decision support systems; Knowledge as a resource and its role in semantic society; Knowledge representation; Knowledge management and engineering; The concept Set of Experience (SOE) and Decisional DNA (DDNA); Set of Experience knowledge representation; Ontologies and Semantic Web; Trust and security and its role in artificial intelligent systems; The concept of E-Community; Challenges of the incoming fourth industrial revolution (Industry 4.0) and Internet of Things (IoT) related to smart management and engineering of information and knowledge.		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Oral exam	50.0%	100.0%
Recommended reading	Basic literature	<p>Huk, M., M. Maleszka, E.Szczerbicki: Intelligent Information and Database Systems: Recent Developments, Springer-Verlag Studies in Computational Intelligence, 2019.</p> <p>Cesar Sanin, Edward Szczerbicki, Experience Based Knowledge Representation for Internet of Things and Cyber Physical Systems with Case Studies, <i>Future Generation Computer Systems</i>, 2018, DOI: 10.1016/j.future.2018.01.062</p> <p>Szczerbicki, E; Nguyen, N Smart Information and Knowledge Management: Advances, Challenges, and Critical Issues, Springer Berlin, 2010.</p>	
	Supplementary literature	<p>Zhang H., Sanin C., and E Szczerbicki, When Neural Networks meet Decisional DNA: A Promising New Perspective for Knowledge Representation and Sharing, <i>Cybernetics and Systems: An International Journal</i> 2016 Vol 47, DOI: 10.1080/01969722.2016.1128776, pp. 140-148.</p> <p>M. Bilal Ahmed, Cesar Sanin, Edward Szczerbicki., Experience-based Decisional DNA (DDNA) to support product development, <i>Cybernetics and Systems: An International Journal</i> 2018 Vol 49, DOI: <a href="https://doi.org/10.1080/01969722.2017.1418743">10.1080/01969722.2017.1418743</a></p>	
	eResources addresses	<p>Podstawowe</p> <p><a href="https://enauczanie.pg.edu.pl/moodle/enrol/index.php?id=29875">https://enauczanie.pg.edu.pl/moodle/enrol/index.php?id=29875</a> - Course INFORMATION AND KNOWLEDGE MANAGEMENT 2023/24</p>	

Example issues/ example questions/ tasks being completed	What are the three major advantages of using simulation to support decision making processes.
Work placement	Not applicable