



## Subject card

Subject name and code	Knowledge Bases, PG_00064479						
Field of study	Informatics						
Date of commencement of studies	February 2027	Academic year of realisation of subject			2026/2027		
Education level	second-cycle studies	Subject group			Optional subject group Specialty 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	1	Language of instruction			Polish		
Semester of study	1	ECTS credits			2.0		
Learning profile	general academic profile	Assessment form			assessment		
Conducting unit	Department of Software Engineering -> Faculty of Electronics Telecommunications and Informatics -> Faculties of Gdańsk University of Technology						
Name and surname of lecturer (lecturers)	Subject supervisor	dr inż. Wojciech Waloszek					
	Teachers	dr inż. Wojciech Waloszek					
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	15.0	0.0	0.0	30
	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	30		4.0		16.0	50
Subject objectives	The goal of the course to familiarize the students with the notion of ontologies - formal specifications of various domain of interest - and to present them with techniques connected with semantic processing of Internet data (Semantic Web initiative).						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[K7_W10] knows and understands, to an increased extent, the basic processes occurring in the life cycle of equipment, objects and technical systems, as well as methods of supporting processes and functions, specific to the field of study	A student describes the basic assumptions of Description Logics and clarifies its relationship to first order logic. The student presents definitions of basic notions in Description Logics	[SW1] Assessment of factual knowledge
	[K7_U04] can apply knowledge of programming methods and techniques as well as select and apply appropriate programming methods and tools in computer software development or programming devices or controllers using microprocessors or programmable elements or systems specific to the field of study, making assessment and critical analysis of the prepared software as well as a synthesis and creative interpretation of information presented with it	A student specifies requirements for an ontology and designs it	[SU1] Assessment of task fulfilment
	[K7_U03] can design, according to required specifications, and make a complex device, facility, system or carry out a process, specific to the field of study, using suitable methods, techniques, tools and materials, following engineering standards and norms, applying technologies specific to the field of study and experience gained in the professional engineering environment	A student authors an ontology with use of proper tools and methods	[SU1] Assessment of task fulfilment
Subject contents	Course content – lecture 1. Introduction to Knowledge Management 2. Methods of Knowledge Representation 3. First Order Logics and its Role in Knowledge Representation 4. Rules as Knowledge Representation Tools 5. Early Methods of Ontological Knowledge Representation 6. Semantic Web Initiative 7. RDF Graphs 8. OWL and its Sublanguages 9. Description Logics Basics 10. Review of Description Logics and Interpretations 11. Description Logics Ontologies 12. Ontology Engineering: Integrating OWL and Rules 13. Review of Ontology Engineering Issues		
Prerequisites and co-requisites			
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Test after lectures	50.0%	50.0%
	Practical exercise	50.0%	50.0%
Recommended reading	Basic literature	Franz Baader et al.: "The Description Logic Handbook: Theory, Implementation, and Applications", Cambridge University Press 2003. Steffen Staab, Rudi Studer: "Handbook on Ontologies", Springer-Verlag 2003. Ronald J. Brachman, Hector J. Levesque: "Knowledge Representation and Reasoning", Elsevier 2004.	
	Supplementary literature	No requirements	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Designing an exemplary ontology.  Formulation of competency question and solving reasoning problems.  Extraction of information from Wikipedia with use of SPARQL queries.		
Practical activities within the subject	Not applicable		

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