

Subject card

Subject name and code	Fundamentals of Business Intelligence, PG_00177476						
Field of study	Informatics and Econometrics						
Date of commencement of studies	October 2026		Academic year of realisation of subject		2026/2027		
Education level	Master's 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	1		Language of instruction		Polish		
Semester of study	1		ECTS credits		6.0		
Learning profile	academic		Assessment form		credit		
Conducting unit	Department of Business Informatics -> Faculty of Management -> Rector						
Name and surname of lecturer (lecturers)	Subject supervisor		dr Jacek Maślankowski				
	Teachers						
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	45.0	0.0	0.0	60
	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	60		4.0		86.0	150
Subject objectives	1. Familiarizing students with a comprehensive approach to designing data warehouses and Business Intelligence systems. 2. Preparing students to write scripts that manage data collected in Business Intelligence systems.						

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[IiEMU2_U03] Is able to obtain and verify data from properly selected sources and to collect, process, and visualize it using modern econometrics, informatics or statistics tools	Student is able to find appropriate data sources to solve a specific problem and critically evaluates the quality of that data.	[SU2] presentation/project/paper/report
	[IiEMU2_U12] Can adapt, design, create, and operate IT systems that support business entities	Is able to Design tabular, graphical and map reports based on database queries, creates queries for reporting systems – in SQL and MDX languages, manages the reporting server and automates the processes occurring in them.	[SU2] presentation/project/paper/report
	[IiEMU2_W09] Possesses a comprehensive understanding of both traditional and modern entrepreneurship principles	Student understands the purpose of creating and using Business Intelligence systems and the mathematical, statistical and econometric methods used in them, e.g. data mining models.	[SW4] test/exam - oral or written
	[IiEMU2_W05] Possesses advanced knowledge and understanding of informatics, statistics, and econometrics techniques and tools used to acquire, process, or visualise data to aid in decision-making and verify research hypotheses	Student understands the purpose of creating and using Business Intelligence systems and the mathematical, statistical and econometric methods used in them, e.g. data mining models.	[SW4] test/exam - oral or written
Subject contents	Lecture 1. Introduction to data warehouses and decision support systems. 2. Data warehouse architecture. 3. Data mining methods and OLAP systems. 4. Data warehouse modeling and data integration. 5. Data warehouse implementation methodologies. 6. Business Intelligence systems. 7. Creating data models. 8. Example of model building. 9. Data warehouse management. Exercises 1. Creating an operational database: advanced select statements, transferring data sets. 2. Implementing a multidimensional model: creating multidimensional tables, layering dimensions. 3. Transferring data to a multidimensional model: designing the ETL process. 4. Analytic and reporting tools: MS Reporting Services - creating multidimensional reports and analyses. 5. The Essentials of Reporting Services: SQL Server Reporting Services, PowerBI, Python libraries, deployment scenarios, installation 6. Report preparation: report design planning, data retrieval, layout design, interactions, and features 7. Data visualization: charts, gauges, indicators, maps. 8. RDL (Report Definition Language): XML syntax and tag description. 9. Report Server security and administration		
Prerequisites and co-requisites	None		
Assessment methods and criteria	Subject passing criteria	Passing threshold	Percentage of the final grade
	Exam - test	51.0%	50.0%
	Project	51.0%	50.0%
Recommended reading	Basic literature	1. Wrycza S., Maślankowski J. (red.), Informatyka ekonomiczna. Teoria i zastosowania., PWN, 2019 - rozdział 19. Systemy Business Intelligence; rozdział 15. Bazy Danych. Big Data. 2. Kimball R., Ross M., The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling, John Wiley & Sons, 2013 3. Misner S., Microsoft SQL Server 2012 Reporting Services, Tomy 1 i 2, APN Promise 2013 4. Documentation: MS SQL Server Analysis Services and Reporting Services	
	Supplementary literature	1. Januszewski A., Funkcjonalność informatycznych systemów zarządzania. T. 2. Systemy Business Intelligence, PWN 2013 2. Inmon W., Building the Data Warehouse. Fourth edition., John Wiley & Sons, New York 2005 3. Collier K.W., Agile Analytics: A Value-Driven Approach to Business Intelligence and Data Warehousing, Addison Wesley, 2012 4. Documentation of Python language	
	eResources addresses		
Example issues/ example questions/ tasks being completed	Knowledge of Data Warehouse Models Building Business Intelligence Systems		

Work placement	Not applicable
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