University of Gdańsk

Subject card

Subject name and code	Fundamentals of Business Intelligence, PG_00177451		
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	English
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

Familiarizing students with a comprehensive approach to designing data warehouses and Business Intelligence systems.

Preparing students to write scripts for querying the data collected in Business Intelligence systems

Learning outcomes	Course outcome	Subject outcome	Method of verification
	[IiEMU2_U12] The student can adapt, design, create, and operate IT systems that support business entities.	Designs 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] The student possesses a comprehensive understanding of both traditional and modern entrepreneurship principles.	Critically evaluates reports used in Business Intelligence.	[SW4] test/exam - oral or written
	[IiEMU2_U03] The student 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.	Finds appropriate data sources to solve a specific problem and critically evaluates the quality of that data.	[SU2] presentation/project/paper/ report
	[IiEMU2_W05] The student 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.	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 Introduction to data warehouse and decision support systems. Data warehouse architecture. Data mining methods and OLAP systems. Data warehouse modeling - data integration. Data warehouse implementation methodologies. Business Intelligence systems classification and its role. Creating data models. Building data models use cases. Data warehouse management. Exercises Creating a staging area: advanced forms of select statements, transferring data sets. Implementation of a multidimensional model: creating multidimensional cubes with dimensions. Transferring data to a multidimensional model: designing the ETL process. Analytical and reporting tools: MS Reporting Services - creating reports and multidimensional analyses. The essence of reporting services - SQL Server Reporting Services, PowerBI, Apache SuperSet, deployment scenarios, installation. Report preparation report design planning, data retrieval, layout design, interactions and features Data visualization - charts, gauges, indicators, maps. RDL (Report Definition Language) - syntax and description of XML tags. Report server - security and administration.
Prerequisites and co-requisites	Knowledge of the SQL language and the basics of creating databases
Assessment methods and criteria	

Subject passing criteria	Passing threshold	Percentage of the final grade
Project	51.0%	50.0%
Exam - test	51.0%	50.0%

Recommended reading	Basic literature	Kimball R., Ross M., The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling, John Wiley & Sons, 2013 Hughes S., Hands-On SQL Server 2019 Analysis Services: Design and query tabular and multi-dimensional models using Microsoft's SQL Server Analysis Services, 2020 Larson B., Microsoft SQL Server 2016 Reporting Services, Fifth Edition, McGraw-Hill Education, 2016 Documentation of MS SQL Server Analysis Services and Reporting Services
	Supplementary literature	Wrycza S., Maślankowski J., Informatyka ekonomiczna. Teoria i zastosowania., PWN, 2019 - rozdział 19. Systemy Business Intelligence; rozdział 15. Bazy Danych. Big Data. Inmon W., Building the Data Warehouse. Fourth edition., John Wiley & Sons, New York 2005 Collier K.W., Agile Analytics: A Value-Driven Approach to Business Intelligence and Data Warehousing, Addison Wesley, 2012
	eResources addresses	
Example issues/ example questions/ tasks being completed	Data Warehouse ArchitectureTypes of Business Intelligence Systems	
Work placement	Not applicable	

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