University of Gdańsk

Subject card

Subject name and code	Fundamentals of Business Intelligence, PG_00178701						
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	part-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	8.0	0.0	24.0	0.0	0.0	32
	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	32		2.0	116.0	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_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
[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_U12] Can adapt, design, create, and operate IT systems that support business entities	Student 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_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

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
Activity	51.0%	10.0%
Project	51.0%	40.0%
Exam - test	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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