University of Gdańsk

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_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.	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_W09] The student possesses a comprehensive understanding of both traditional and modern entrepreneurship principles.	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] 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

<table>
<tr><td>Subject contents</td><td>LectureIntroduction to data warehouses 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.Creating data models.Example of building a model.Data warehouse management.ExercisesCreating an operational database: advanced forms of select statements, transferring data sets.Implementing a multidimensional model: creating multidimensional tables, layering dimensions.Transferring data to a multidimensional model: designing the ETL process.Analytical and reporting tools: MS Reporting Services creating multidimensional reports and analyses.The essence of reporting services SQL Server Reporting Services, PowerBI, Apache SuperSet, implementation scenarios, installationPreparing reports planning the report project, downloading data, designing the layout, interactions and functionsData visualization charts, gauges, indicators, maps.RDL (Report Definition Language) XML tag syntax and description.Report server security and administration,</td></tr>
<tr><td>Prerequisites and co-requisites</td><td>None</td></tr>
<tr><td>Assessment methods and criteria</td><td><table>
<tr><th>Subject passing criteria</th><th>Passing threshold</th><th>Percentage of the final grade</th></tr>
<tr><td>Exam - test</td><td>51.0%</td><td>50.0%</td></tr>
<tr><td>Project</td><td>51.0%</td><td>50.0%</td></tr>
</table></td></tr>
<tr><td>Recommended reading</td><td><table>
<tr><td>Basic literature</td><td>Wrycza S., Maślankowski J. (red.), Informatyka ekonomiczna. Teoria i zastosowania., PWN, 2019 - rozdział 19. Systemy Business Intelligence; rozdział 15. Bazy Danych. Big Data.

Kimball R., Ross M., The Data Warehouse Toolkit: The Definitive Guide to Dimensional Modeling, John Wiley & Sons, 2013

Misner S., Microsoft SQL Server 2012 Reporting Services, Tomy 1 i 2, APN Promise 2013

Documentation: MS SQL Server Analysis Services and Reporting Services</td></tr>
<tr><td>Supplementary literature</td><td>Januszewski A., Funkcjonalność informatycznych systemów zarządzania. T. 2. Systemy Business Intelligence, PWN 2013

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</td></tr>
<tr><td>eResources addresses</td><td></td></tr>
</table></td></tr>
<tr><td>Example issues/ example questions/ tasks being completed</td><td>Knowledge of Data Warehouse ModelsBuilding Business Intelligence Systems</td></tr>
<tr><td>Work placement</td><td>Not applicable</td></tr>
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