

Subject card

Subject name and code	Fundamentals of Business Intelligence, PG_00156484						
Field of study	Informatics and Econometrics						
Date of commencement of studies	October 2024		Academic year of realisation of subject		2024/2025		
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		5.0		
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		dr Jacek Maślankowski				
Lesson types	Lesson type	Lecture	Tutorial	Laboratory	Project	Seminar	SUM
	Number of study hours	15.0	0.0	30.0	0.0	0.0	45
	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	45		20.0		60.0	125
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
	[liEMU2_U04] The student is able to plan, design, and program information systems at an advanced level, supporting the operation of business entities.	Critically evaluates reports used in Business Intelligence.	[SU2] presentation/project/paper/report
	[liEMU2_K01] The student understands the need for continuous completion and deepening of acquired knowledge. The student inspires and organizes others' learning processes.	Takes on challenges related to expanding reporting functionality.	[SK2] presentation/project/paper/report
	[liEMU2_U02] The student is able to proficiently acquire detailed information about economic processes and phenomena through direct observation, planned experimentation or database queries, as well as collect and process it using modern information technology tools.	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
	[liEMU2_K03] The student is able to communicate freely with the public inside and outside the workplace, transfer his knowledge and share his skills through various media.	Adheres to the principles of teamwork in the process of creating reports.	[SK2] presentation/project/paper/report
	[liEMU2_W04] The student has an in-depth knowledge of advanced mathematical, statistical, econometric and IT methods that enable the acquisition, processing and analysis of data reflecting the functioning and growth of the national economy and its components, as well as the phenomena and processes occurring in their environment.	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
	[liEMU2_W05] The student has an in-depth knowledge of socio-economic data sources, their databases and how to create them.	Finds appropriate data sources to solve a specific problem and critically evaluates the quality of that data.	[SW4] test/exam - oral or written
	[liEMU2_K02] The student can communicate freely with the public on specialised topics in the field of computer science and econometrics in and outside the workplace, communicate his knowledge and share his skills through various media. Culturally participates in discussions, is not afraid to ask questions and knows how to give constructive criticism.	Communicates with other members of the project group in order to supplement the functionality of the presented solutions.	[SK2] presentation/project/paper/report
Subject contents	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,		
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	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	
	Supplementary literature	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	
	eResources addresses		
	Example issues/ example questions/ tasks being completed	Knowledge of Data Warehouse ModelsBuilding Business Intelligence Systems	
Work placement	Not applicable		

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