



DESCRIPTION OF THE OBJECT

FIELD OF STUDY	Management
SPECIALISATION	Business management
MODE OF STUDY	Full-time studies / Part-time studies
SEMESTER	4

Name of the subject	Computer techniques in management	
Hourly dimension of particular forms of classes <ul style="list-style-type: none">lecturesother forms	Full-time studies – 30 Part-time studies - 18	
	Full-time studies – 10 Part-time studies – 8	
	Full-time studies – 20 Part-time studies – 10	

Learning objectives:	<ul style="list-style-type: none">– presenting detailed principles of data warehouse organisation– to get acquainted with the practical use of data warehouses in management systems– to present Business Intelligence systems– presenting problems connected with data acquisition and unification in management data analysis processes– acquiring skills of algorithmization of problems of input information control and conversion of these data for the needs of created data warehouses– acquiring skills of creating analyses and summaries in enterprise management from unformatted information
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Learning outcomes for the subject	
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Number	Learning outcomes, a student who has successfully completed the course will be able to:	Reference of learning outcomes for the programme	The reference to the learning outcomes for the area
EK_W01	Characterise the concept of data warehouses used in management from the organisational and IT point of view	K_W01	P6S_WG
EK_W02	Describe the architecture of Business Intelligence systems and their basic features	K_W15	P6S_WK
EK_U03	Apply the principles of unification and conversion of data collected in management systems	K_U04	P6S_UW
EK_U04	Analyse data needed to produce statements and company analyses from the point of view of their formal and content-related correctness	K_U08	P6S_UW

EK_K05	Perceive the relationship between the reliability of data in warehouses and the validity of created analyses	K_K08	P6S_KR
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Content number	Educational/ curricular content	Reference to learning outcomes for the subject
	Lectures	
T_01	Principles of data warehouse organization, characteristics of a data warehouse, types of information collected in data warehouses, fundamentals of the organization of transactional data sets, relations between data collected in data warehouses, Number data formats	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_02	Characteristics of Business Intelligence systems, features and components of BI systems, principles of analytical processing, OLAP cubes, principles for creating queries in analysis construction, algorithmization of problems in commercial data analysis	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_03	Conversion of input data, principles of unification of number and date formats, creation of time layers in the construction of multidimensional management analyses, basics of algorithmic problems for trade data analysis	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_04	Input data control, algorithms for control of structured data (e.g. PESEL, NIP), Benford distribution and its use for evaluation of random data, use of simple applications for information control, advanced functionalities in Excel used in data analysis, calculation scenarios	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05

	Exercises	
T_05	Analysis of financial and accounting data in Excel, creation of time layers in mass data, analysis of multidimensional data using pivot tables, basics of macro building in Excel, algorithmization of problems	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_06	Information control, algorithms for control of identification data (PESEL, NIP), practical construction of algorithms in Excel, assessment of the correctness of text data, processing and analysis of text data	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_07	Practical rules for the unification of Number data formats and date formats in Excel, conversion of Number data into text and text into Number data for analytical purposes in accounting	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_08	Creating algorithms for factual control of data in data warehouses, analysis of facts, descriptions and metadata in data warehouses, practical analysis of bulk data - creating queries to databases, using Visual Basic	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05
T_09	Randomness assessment of datasets in transactional analyses, use of Benford distribution for randomness assessment, randomness analysis in multidimensional databases, randomness analysis in time layers	EK_W01 EK_W02 EK_U03 EK_U04 EK_K05

Methods and forms of teaching	Educational and curricular content
Lecture with multimedia presentation of selected issues	
Conversation lecture	
Problem-based lecture	T_01 – T_04
Informative lecture	
Discussion	
Working with text	
Case study method	
Problem-based learning	
Didactic/simulation game	
Exercise method	T_05 – T_09
Workshop method	
Project method	
Multimedia presentation	
Audio and/or video demonstrations	
Activation methods (e.g. brainstorming, SWOT analysis technique, decision tree technique, „snowball” method, constructing „mind maps”)	
Other (which ones?) - ...	
...	

Evaluation criteria in relation to particular learning outcomes				
Learning outcome	For assessment 2	For assessment 3	For assessment 4	For assessment 5
EK_W01	Student cannot characterise the concept of a data warehouse	The student is able to characterise the concept of a data warehouse	The student is not only able to characterise the concept of a data warehouse, but is also able to indicate examples of applications of data warehouses in enterprise management	The student is not only able to characterise the concept of a data warehouse as an organisational and IT undertaking, but is also able to discuss examples of warehouses used in enterprise management
EK_W02	The student is not able to describe the architecture of Business Intelligence systems and does not know their definitions	The student is able to describe the architecture of Business Intelligence systems	The student is not only able to describe the architecture of Business Intelligence systems and basic components of BI systems, but is also able to give a minimum of 1 definition of a BI system	The student is not only able to describe the architecture of Business Intelligence systems and their basic components, but is also able to give at least 3 different definitions of BI and examples of their use in management processes
EK_U03	The student is not able to formulate principles concerning the unification and conversion of data collected for analysis in management processes	The student is able to formulate principles for the unification and conversion of data collected for analysis in management processes	The student is not only able to formulate principles for data unification, but is also able to give examples of data conversion	The student is not only able to formulate principles concerning the unification of data collected for analysis in management processes, but is also able to

			collected for analysis in management processes	formulate methods of data conversion and give examples of the use of these methods
EK_U04	The student is not able to analyse the correctness of the data used in simple trade analyses	The student is able to analyse the correctness of the data used in accounting by means of ready-made analyses in Excel	Students will be able to analyse the correctness of data which are the basis for trade analyses from the formal and content-related point of view and they will be able to use Excel to analyse data	The student is not only able to analyse the correctness of data being the basis of trade analyses from the formal point of view, but also from the substantive point of view, he/she is able to create independently a data correctness analysis in Excel
EK_K05	The student does not perceive the relationship between the reliability of the data in the warehouses and the validity of the analyses created	The student perceives the relationship between the reliability of the data in the warehouses and the validity of the analyses created	The student not only perceives the relationship between the reliability of data in warehouses and the validity of the analyses created, but is also able to discuss the consequences of accepting erroneous results on the decision-making process	The student not only perceives the relationship between the reliability of data in warehouses and the validity of the analyses created, but is also able to discuss the consequences of accepting erroneous results on the decision-making process, pointing to examples in management processes

Verification of learning outcomes	EK symbols for the module/subject				
	W01	W02	U03	U04	K05
Written examination					
Oral examination					
Written credit	X	X	X	X	X
Oral credit					
Written colloquium					
Oral colloquium					
Test					
Project					
Written work					
Report					
Multimedia presentation					
Work during exercise	X	X	X	X	X
Other (which?) -					

Hourly teaching load and student workload	Full-time studies	Part-time studies
1. Lectures (joint participation of academics and students)	10	8
2. Other forms (joint participation of academic staff and students)	20	10
3. Consultation with the teacher	-	-
Total 1+2+3	30	18
4. Internships (carried out by students on their own)	—	—

5. Student's own work (including homework and project work, preparation for a credit/exam)	20	32
Total 4+5	20	32
SUMMARY 1+2+3+4+5	50	50
Total ECTS credits according to the study plan	2	

Reference literature	<ul style="list-style-type: none"> - Januszewski Arkadiusz, <i>Funkcjonalność informatycznych systemów zarządzania</i>, T.1, Wydawnictwo Naukowe PWN, 2008. - Januszewski Arkadiusz, <i>Funkcjonalność informatycznych systemów zarządzania</i>, T.2, Wydawnictwo Naukowe PWN, 2008. - Mazurek Krzysztof, <i>Zastosowanie technik informatycznych w zarządzaniu</i>, Skrypt WSHiU, 2010.
Complementary literature	<ul style="list-style-type: none"> - Dokumentacja programu COMARCH BUSINESS INTELLIGENCE w formie elektronicznej (pliki PDF) - Dokumentacja programu COMARCH OPTIMA w formie elektronicznej (pliki PDF) - Prezentacje wykorzystane w trakcie wykładów w formie dokumentów PDF - Nowoczesne zarządzanie. Magazyny Comarch ERP – dostępne w formie elektronicznej na stronie www.NZ.comarch.pl