

### 1.3. Module/ course form

To be completed by Course Team	Module name :				Module code: M23		
	Course name: <b>Data Warehouse</b>				Course code:		
	Faculty: <b>The Institute of Applied Informatics</b>						
	Field of study: <b>Informatics</b>						
	Mode of study : <b>daily</b>		Learning profile: <b>practical</b>		Speciality: <b>Database design and application software</b>		
	Year/ semester: <b>3/5</b>		Module/ course status: <b>obligatory</b>		Module/ course language: <b>polish</b>		
	Type of classes	lecture	lessons	lab	project	tutorial	other (please specify)
	Course load			<b>30</b>			

Module/ course coordinator	mgr inż. Daria Rybarczyk
Lecturer	mgr inż. Daria Rybarczyk
Module/ course objectives	The course teaches students how to build a data warehouse, implement an Analysis Services Solution and create reporting systems
Entry requirements	Before attending this course students must have: a basic understanding of database design, administration and implementation concepts; experience with MS SQL Server

LEARNING OUTCOME		
Nr	LEARNING OUTCOME DESCRIPTION	Learning outcome reference
	Knowledge (after completing this course, students will be able to:)	
01	Understand the concept of data warehouse design	K_W14
02	Describe the elements of a data warehouse	K_W14
	Skills (after completing this course, students will be able to:)	
03	Model ETL processes	K_U18
04	Design a data warehouse schemas	K_U18
05	Analyze the data in the warehouse	K_U18; K_U12
06	Create different reports	K_U18

07	Efficiently navigate in MS SQL Server Business Intelligence Development Studio	K_U18;K_U13;K_U05
	Social competence (after completing this course, students will be able to:)	
08	See the responsibility for prepared analyzes and reports	K_K02

## CURRICULUM CONTENTS

### Lecture

The subject of laboratory tasks is to develop parts of a complex system such as a data warehouse in SQL Server. Individual tasks are data transfer from external databases into the data warehouse, validate data, analysis of data and development of reporting tools.

1. Introduction to the practical aspects of data warehousing
2. Analysis of the source data, perform the ETL process
3. The creation of a data warehouse schema based on the sample database
4. Modification of a project created ( modifying a Cube, implement calculated members and named sets in a Cube)
5. Working with the multidimensional Cubes
6. Scaling and optimization of warehouse ( aggregations, partitioning, ways of processing Cubes)
7. Design and perform SQL queries and MDX queries
8. Querying a Cube by using advanced MDX
9. Use Excel spreadsheet for analysis and presentation of data (pivot Tables, charts)
10. Data Mining using MS Clustering, MS Decision Trees, MS Naïve Bayes
11. Use of available data mining techniques to analyze real data
12. Planning and execution of reports
13. Reporting Services – sample projects

### Tutorial

Basic literature	<ol style="list-style-type: none"> <li>1. V. Poe, Tworzenie hurtowni danych : wspomaganie podejmowania decyzji, WNT 2000</li> <li>2. L. Banachowski, K. Stencel, Bazy danych. Projektowanie aplikacji na serwerze, Akademicka Oficyna Wydawnicza EXIT, 2001</li> </ol>
Additional literature	

Teaching methods	Laboratory exercises, multimedia presentation, demonstration, instruction, individual consultation with the teacher	
	Assessment method	Learning outcome number
	Student solves problems defined by the teacher in laboratory classes	01; 02; 03; 04; 05; 06; 07; 08
	Student performs tasks on the first test	03; 04; 06; 07
	Student performs tasks on the second test	05; 06; 07

Form and terms of an exam	<p>Laboratory classes are based on the materials of the Microsoft IT Academy course "Implementing and maintaining Business Intelligence in MS SQL Server" located at <a href="http://itacademy.microsoftlearning.com">http://itacademy.microsoftlearning.com</a></p> <p>Assessment is based on participation in laboratory exercises and points scored on two tests</p> <p>Scoring over 72% entitle to receive a certificate of completion Microsoft IT Academy Course</p>
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<b>STUDENT WORKLOAD</b>	
	Number of hours
Participation in lectures	
Independent study of lecture topics	
Participation in tutorials, labs, projects and seminars	30
Independent preparation for tutorials*	10
Preparation of projects/essays/etc.*	
Preparation/ independent study for exams	10
Participation during consultation hours	5
Other	
<b>TOTAL student workload in hours</b>	<b>55</b>
<b>Number of ECTS credit per course unit</b>	<b>2 ECTS</b>
Number of ECTS credit associated with practical classes	50 <b>2 ECTS</b>
Number of ECTS for classes that require direct participation of professors	35 <b>1,4 ECTS</b>