

MODULE DESCRIPTION

Module code	Z-ZIP-0325
Module name	Bazy danych
Module name in English	Databases
Valid from academic year	2016/2017

A. MODULE PLACEMENT IN THE SYLLABUS

Field of study	Management and Production Engineering
Level of education	1st degree <i>(1st degree / 2nd degree)</i>
Studies profile	General <i>(general / practical)</i>
Form and method of conducting classes	Full-time <i>(full-time / part-time)</i>
Specialisation	All
Unit conducting the module	Department of Applied Computer Science and Applied Mathematics
Module co-ordinator	Marzena Nowakowska, PhD hab.
Approved by:	

B. MODULE OVERVIEW

Type of subject/group of subjects	Major <i>(basic / major / specialist subject / conjoint / other HES)</i>
Module status	Compulsory <i>(compulsory / non-compulsory)</i>
Language of conducting classes	English
Module placement in the syllabus - semester	4th semester
Subject realisation in the academic year	Summer semester <i>(winter / summer)</i>
Initial requirements	Information Technologies, Fundamentals of Informatics <i>(module codes / module names)</i>
Examination	No <i>(yes / no)</i>
Number of ECTS credit points	3

Method of conducting classes	Lecture	Classes	Laboratory	Project	Other
Per semester	15		24		

C. TEACHING RESULTS AND THE METHODS OF ASSESSING TEACHING RESULTS

Module target	The aim of the module is to acquire knowledge and skills indispensable in correct designing and implementing database systems and their applications. Another aim is to acquaint students with the principles of modelling and designing databases, relational database model, standardisation of logic database schemata. Finally, the aim of the module is to prepare a student to effectively operate databases in the MS ACCESS environment.
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Effect symbol	Teaching results	Teaching methods (l/c/lab/p/other)	Reference to subject effects	Reference to effects of a field of study
W_01	A student knows and understands database universality and the benefits of applying them.	l/lab	K_W05	T1A_W03 S1A_W06
W_02	A student has basic knowledge as regards relational database model including data structures of this model, model operation, integrational constraints, and the standardisation process of a logic schema.	l/lab	K_W05	T1A_W03 S1A_W06
U_01	A student is able to design his/her own relational database, built from several connected tables; a student is also able to conduct the standardisation process.	lab	K_U07	TA1_U01 TA1_U07 TA1_U08
U_02	A student is able to manage a created database and effectively use a query language.	lab	K_U07	TA1_U01 TA1_U07 TA1_U08
U_03	A student has the ability of presenting information obtained from a database in a understandable for an external user.	lab	K_U07	TA1_U01 TA1_U07 TA1_U08
K_01	A student understands the necessity of continuous improvement of his/her knowledge as regards databases.	l/lab	K_K01	T1A_K01
K_02	A student can work individually and in a team (by accepting various roles in it).	lab	K_K04	T1A_K03 T1A_K04

Teaching contents:

1. Teaching contents as regards lectures

Lecture number	Teaching contents	Reference to teaching results for a module
1-2	Introduction to the database theory. Database characteristics. The requirements for databases. Database models. Relational databases. Designing a database system. Standardisation process.	W_01 W_02 U_01 K_01
3	Basic operations on tables. Data filtering and sorting. Designing queries. Select, cross-tab, action, and parameter queries.	W_02 U_01 U_02 U_03
4	Designing forms. Form types. Form sections. Types of formatives. Changing form properties and its components. Bound forms.	U_01 U_02 U_03
5	Designing reports. Report types. Report sections. Data sorting and grouping. Macros: actions and action parameters.	U_01 U_02 U_03
6	The application of macros in forms and reports. Defining conditional action execution in macros. Application control forms. Defining menu bars for applications.	U_01 U_02 U_03
7	Database application in multiuser and network environments (Novell, Windows, and the Internet). The application of blocking tables and records. Replication and synchronisation of a database. Publishing data sheets,	W_02 U_01 U_02

	forms, reports in the HTML format.	U_03
8	A final test.	

2. Teaching contents as regards classes

Class number	Teaching contents	Reference to teaching results for a module

3. Teaching contents as regards laboratory classes

Laboratory class number	Teaching contents	Reference to teaching results for a module
1-2	Designing database systems. Creating tables (structure, data inserting and index markers). A primary and secondary table key. Relationships between database tables. Basic operations on tables.	W_02 U_01 U_02 U_03 K_02
3-5	Data filtering and sorting. Designing queries. Expression creator . Derived fields. Parameter queries. Conditions in queries: filtering. SQL aggregation functions. Cross-tab and grouping queries. Action queries: create-table, update, append, and delete. Test 1.	W_02 U_01 U_02 U_03 K_02
6-7	Designing forms. Form sections. Form types. Changing the properties of a form and its components. Master/Detail form.	W_02 U_01 U_02 U_03 K_02
8-9	Designing reports. Report sections. Data sorting and grouping. Summaries.	W_02 U_01 U_02 U_03 K_02
10-12	Macros: actions and action parameters. Using macros in forms and reports. Adding condition to a macro. Creating a simple database application. Control panel. Defining menu bars. Event macro programming. Connecting macros with a form and its controls. Test 2. The extension of a database application. Creating the application desktops. Securing the applications.	W_02 U_01 U_02 U_03 K_02

4. The characteristics of project assignments

The methods of assessing teaching results

Effect symbol	Methods of assessing teaching results <i>(assessment method, including skills – reference to a particular project, laboratory assignments, etc.)</i>
W_01	A test.
W_02	A test.
U_01	Test 1 during the classes (defining tables and table relationships) and a final test during the lecture (standardisation of a logic schema).
U_02	Test 1 during the classes (queries).
U_03	Test 2 during the classes (formulas, reports, and macros).

K_01	Comments during the lectures and a discussion during the classes.
K_02	Observing a student's involvement during laboratory classes.

D. STUDENT'S INPUT

ECTS credit points		
	Type of student's activity	Student's workload
1	Participation in lectures	15
2	Participation in classes	
3	Participation in laboratories	24
4	Participation in tutorials (2-3 times per semester)	3
5	Participation in project classes	
6	Project tutorials	
7	Participation in an examination	
8		
9	Number of hours requiring a lecturer's assistance	42 <i>(sum)</i>
10	Number of ECTS credit points which are allocated for assisted work <i>(1 ECTS point=25-30 hours)</i>	1.4
11	Unassisted study of lecture subjects	10
12	Unassisted preparation for classes	
13	Unassisted preparation for tests	10
14	Unassisted preparation for laboratories	24
15	Preparing reports	
15	Preparing for a final laboratory test	
17	Preparing a project or documentation	
18	Preparing for an examination	
19	Preparing for a test during the lecture	4
20	Number of hours of a student's unassisted work	48 <i>(sum)</i>
21	Number of ECTS credit points which a student receives for unassisted work <i>(1 ECTS point=25-30 hours)</i>	1.6
22	Total number of hours of a student's work	90
23	ECTS points per module <i>1 ECTS point=25-30 hours</i>	3
24	Work input connected with practical classes <i>Total number of hours connected with practical classes</i>	60
25	Number of ECTS credit points which a student receives for practical classes <i>(1 ECTS point=25-30 hours)</i>	2

E. LITERATURE

Literature list	<ol style="list-style-type: none"> 1. Banachowski L., <i>Bazy danych. Tworzenie aplikacji</i>, Akademicka Oficyna Wydawnicza PLJ 1998. 2. Dobson R., <i>Microsoft Access 2000. Programowanie</i>, Wydawnictwo RM, Warszawa 2000. 3. Garcia-Molina H., Ullman J.D., Widom J., <i>Systemy baz danych</i>, PWN, Warszawa 2006. 4. Nowakowska M., Zajac E., <i>Access. Programowanie aplikacji</i>, Mikom 1998. 5. Roman S., <i>Access. Baza danych. Projektowanie i programowanie</i>, O'Reilly 2001. 6. Ullman J.D., Widom J., <i>Podstawowy wykład z systemów baz danych</i>, PWN, Warszawa 2000.
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	7. Whitehorn M., Marklyn B., <i>Relacyjne bazy danych</i> , Helion 2003.
Module website	