



COURSE SPECIFICATION

Course code	full-time studies	Z-ZB-E-406
	part-time studies	-
Course title in English	Databases	
Course title in Polish	Bazy danych	
Valid from academic year	2025/2026	

PLACEMENT IN THE TEACHING PROGRAM

Programme of study	BUSINESS MANAGMENT
Level of education	1st degree
Studies profile	academic
Form and mode of study	full-time programme
Scope	all
Academic unit responsible for the course	Department of Information Technology
Course coordinator	dr hab. Marzena Nowakowska, prof. uczelni
Approved by	dr hab. inż. Dariusz Bojczuk, prof. uczelni

GENERAL CHARACTERISTIC OF THE COURSE

Teaching block		Directional subject
Course status		Obligatory
Language of instruction		English
Semester of delivery	full-time studies	Semester IV
	part-time-studies	-
Prerequisites		The Fundamentals of Computer Science, Informatics – programming
Exam (YES/NO)		NO
ECTS		3

Method of conducting classes		lecture	classes	laboratory	project	other
Number of hours per semester	full-time	15		30		
	part-time					



LEARNING OUTCOMES

Category	Outcome code	Course learning outcomes	Reference to the directional learning effect
Knowledge	W01	Student knows and understands database universality and the benefits of applying them. Knows the possibilities and methods of extracting information from databases.	ZB1_W09
	W02	Student has basic knowledge of the relational data model, including the data structures of this model, permissible operations on data, and integrity constraints.	ZB1_W09
Skills	U01	Student is able to design a relational database consisting of multiple interrelated tables and perform the normalization process.	ZB1_U05
	U02	Student is able to manage the application they have created and efficiently use the QBE environment to create queries.	ZB1_U05
	U03	Student has the ability to present information obtained from the database in a user-friendly format for external users.	ZB1_U02 ZB1_U05
Social competences	K01	Student understands the need for continuous knowledge acquisition in the field of databases.	ZB1_K02
	K02	Student is able to work independently and in a group (taking on various roles within the group).	ZB1_K03

COURSE CONTENT

Method of conducting classes	Course content
lecture	<u>Database Issues</u> Introduction to database theory. Characteristics of databases. Requirements for databases. Relational database model. Database system design. The normalization process. Basic operations on tables; filtering and sorting data. Designing SELECT queries: detailed queries, summary queries (including grouping), cross queries. Action queries. Introducing parameters into queries. <u>Application Issues</u> Form design. Types of forms. Form sections. Types of controls. Form property sheet and its objects. Linked forms. Report design. Types of reports. Report sections. Sorting and grouping data in reports. Report properties and its objects. Macro definitions - actions and action parameters. Using macro definitions in forms and reports. Program control actions. Application management forms. Defining control tools for the application. The topics are discussed and demonstrated in the MS Access environment.



laboratory	Database design. Creating tables (structure, data entry, indexes). Primary key of the table. Relationships between tables. Basic operations on tables. Query design. Expression builder. Calculated fields. Parameterized queries. Conditions in queries – data filtering. Summary queries; Crosstab and grouping queries. Action queries: creating tables, updating fields, appending, and deleting records. Form design. Form sections. Types of controls. Setting properties of the form and its components. Linked forms. Report design. Report sections. Sorting and grouping data. Summarizing. Properties of a report and its objects. Macro definitions. Macro actions and their parameters. Conditional statements in macro definitions. Event handling – programming forms with macros. Managing the database from the application level. Forms to control the application; control panel and control access to database resources. Exercise tasks are performed in the MS Access environment.
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METHODS FOR VERIFYING LEARNING OUTCOMES

Outcome code	Learning outcomes verification methods					
	Oral examination	Written examination	Test	Project	Report	Other
W01					X	X
W02			X			X
U01			X		X	X
U02			X		X	X
U03			X			X
K01				X		X
K02				X		X

FORM AND CONDITIONS OF ASSESSMENT

Form of classes	Assessment type	Assessment Criteria
lecture	Credit with grade	Final test at the end of the semester. Exemption from the test is for students who have successfully completed the laboratory sessions at the appropriate level. The final test is passed if the student obtains at least 50% of the maximum possible points. The number of points determines the final grade.
laboratory	Credit with grade	Two computer-based midterm exams. Active participation in classes and work on the group project. The laboratory is passed if the student earns at least 50% of the maximum possible points. The number of points determines the final grade.



STUDENT WORKLOAD

ECTS Balance							
No.	Activity type	Student workload					Unit
		full-time					
1.	Scheduled contact hours	W	C	L	P	S	h
		15		30			
2.	Other (consultations, exams)	2		2			h
3.	Total number of contact hours	49					h
4.	Number of ECTS credits for contact hours	2,0					ECTS
5.	Number of hours of independent student work	26					h
6.	Number of ECTS points that a student obtains through independent work	1,0					ECTS
7.	Workload related to practical classes	50					h
8.	Number of ECTS credit points which a student receives for practical classes	2,0					ECTS
9.	Total number of hours of a student's work	75					
10.	ECTS credits for the course <i>1 1 ECTS credit =25 student learning hours</i>	3					ECTS

W - LECTURE C - CLASSES L - LABORATORY P- PROJECT S - SEMINAR

READING LIST

1. Connolly T., Begg C. (2015). A Practical Approach to Design, Implementation, and Management, Sixth Edition, Person. Available from: [efaidnbmnnnibpcajpcglclefindmkaj/https://dl.ebooksworld.ir/motoman/Pearson.Database.System.s.A.Practical.Approach.to.Design.Implementation.and.Management.6th.Global.Edition.www.EBooksWorld.ir.pdf](https://dl.ebooksworld.ir/motoman/Pearson.Database.System.s.A.Practical.Approach.to.Design.Implementation.and.Management.6th.Global.Edition.www.EBooksWorld.ir.pdf).
2. Mata-Toledo R.A., Cushman P.K. (2020). Fundamentals of Relational Databases, McGraw Hill Professional. Available from: [efaidnbmnnnibpcajpcglclefindmkaj/https://kishorekoduvayur.wordpress.com/wp-content/uploads/2017/12/schaums-fundamentals-of-relational-databases-291.pdf](https://kishorekoduvayur.wordpress.com/wp-content/uploads/2017/12/schaums-fundamentals-of-relational-databases-291.pdf).
3. McFadyen R. (2021). Relational Databases and Microsoft Access 365, Department of Applied Computer Science University of Winnipeg, Canada. Available from: [efaidnbmnnnibpcajpcglclefindmkaj/https://www.acs.uwinnipeg.ca/rmcfadyen/CreativeCommons/Relational%20Databases%20and%20Microsoft%20Access%20V4.0.pdf](https://www.acs.uwinnipeg.ca/rmcfadyen/CreativeCommons/Relational%20Databases%20and%20Microsoft%20Access%20V4.0.pdf).
4. Cox J., Lambert J. (2013). Microsoft Access 2013. Step by Step, Microsoft Press A Division of Microsoft Corporation. Available from: [efaidnbmnnnibpcajpcglclefindmkaj/https://www.pdfes.net/storage/Books/database/microsoft_access_2013_step_by_step.pdf](https://www.pdfes.net/storage/Books/database/microsoft_access_2013_step_by_step.pdf).
5. Murray D. (2020). Microsoft Access 2019 Tutorial and Lab Manual, University of Buffalo. Available from: [efaidnbmnnnibpcajpcglclefindmkaj/https://mgt2.buffalo.edu/departments/mss/djmurray/mgs351/Access_2019_Textbook.pdf](https://mgt2.buffalo.edu/departments/mss/djmurray/mgs351/Access_2019_Textbook.pdf)
Materials for the subject (including tutorials) are widely available on the Internet by searching for one of the following terms: relational databases, MS Access, database design