UNIVERSITY OF WARMIŃSKO-MAZURSKI IN OLSZTYN
Faculty of Mathematics and Computer Science

Syllabus of the subject - part A
17S1-BADABASES

ECTS: 5.50
CYCLE: 2023Z

CONTENTS

LECTURE
Introduction to databases, Basic concepts, Database environment, Entity relationship diagram, Relational data model, SQL database language, defining data, Query language, SQL Access control, Database security, Database transactions, Transaction management, Indexes

LABORATORY EXERCISES
MySQL, SQL, joining tables, aggregate functions, MySQL built-in functions, SQL Subqueries, SQL Granting and revoking privileges, Transaction management, creating simple functions, procedures and triggers, creating indexes

LEARNING OBJECTIVE
The purpose of the course is to familiarize students with the basic concepts and ideas of database systems technology. Students will learn the basic principles of database modeling and design, relational data model, standard SQL database language, normalization of logical database schemas

DESCRIPTION OF THE SUBJECT'S LEARNING OUTCOMES IN RELATION TO THE DESCRIPTION OF THE CHARACTERISTICS OF THE SECOND LEVEL LEARNING OUTCOMES FOR QUALIFICATIONS AT LEVELS 6-8 OF THE POLISH QUALIFICATIONS FRAMEWORK IN RELATION TO SCIENTIFIC DISCIPLINES AND DIRECTIONAL OUTCOMES

Disciplinary Outcomes Symbols:

XP/I1A_K10+, InzA_W05++, XP/I1A_K03+, XP/I1A_U04+, XP/I1A_U08++, XP/I1A_K04+, InzA_U07+, XP/I1A_U21+, XP/I1A_U09++, XP/I1A_W01+, XP/I1A_U17+, XP/I1A_U01+, XP/I1A_U05+, XP/I1A_U07+++, XP/I1A_W07+++, XP/I1A_K01+, InzA_U02++, XP/I1A_W04+++, XP/I1A_K09+, XP/I1A_K08+, InzA_U01+, XP/I1A_U18+.

Directional effect symbols:

K1_W01+, K1_K04+, K1_U16++, K1_U03+, K1_U11++, K1_W19+++, K1_K01+, K1_U06+, K1_U04+, K1_U01+

LEARNING OUTCOMES:
Knowledge:
W1- the process of designing and creating databases in a relational model
W2 - Knows the scheme for preparing a valid database
W3 - Understands the meaning of queries, transactions and indexes in databases
Skills:
U1 - Student can use model relationships

Legal acts defining learning outcomes: 660/2015
Disciplines:
Course status: Compulsory
Subject group:B - major subjects **ISCED code.**
Direction of study: Informatics
Scope of education:
Profile of education:
Form of study: Part-time
Level of study: First degree
Year/semester:

Type of classes: Lecture, Laboratory Exercises
Number of hours per semester: Lecture: 30.00, Laboratory exercises: 45.00
Language of instruction: Polish
Introductory subjects: Elements of logic and multiplicity theory, Introduction to programming
Prerequisites: Ability to operate on sets, perform logical operations, ability to use conditional instructions, loops, understanding of the meaning of variables, understanding of the concept of trees

Name of the org. unit realizing the subject: Department of Mathematical Methods of Computer Science
Person responsible for realization.
Subject: Dr. Paweł Drozda
e-mail: pdrozda@matman.uwm.edu.pl

Additional notes: none

entities to design databases

U2 -Able to use SQL language to create, modify and

database management

Social Competencies:

K1 - The student formulates questions about the tasks set, is able to find the necessary information in the literature and the Internet
K2 - Able to work in a group to develop a project

TEACHING FORMS AND METHODS:

Lecture(W1;W2;W3;U1;U2;K1;K2;):Lecture with multimedia presentation Exercises. Laboratory(W1;W2;W3;U1;U2;K1;K2;):Computer exercises - creating database projects, solving given problems using SQL language.

FORM AND CONDITIONS OF VERIFICATION OF LEARNING OUTCOMES:

Lecture (Written exam) - Answer to the given questions, in special cases the exam may be held in another form - W1, W2, W3, U1, U2, K1
Laboratory Exercises (Control Work) - Inputs -.
Laboratory Exercises (Practical Colloquium) - Solution of the given issues, , in special cases may be held in another form - W2, W3, U2

PRIMARY LITERATURE:

1. None, MySQL 8.0 documnetation, Edition none, R. 2022
2. none, Oracle Documentation, Issue none, R. 2022
3. Hector Garcia-Molina, Jeffrey D. Ullman, Jennifer Widom, Database Systems. The Complete Handbook. 2nd Edition, Helion Publishers, R. 2011.
4. Elmasri Ramez, Navathe Shamkant B., Introduction to Database Systems, Helion Publishers, R. 2019

SUPPLEMENTARY LITERATURE:

1. None, Introduction to Databases course, Stanford, Pub. none, R. 2020.

Detailed description of the awarded ECTS credits - part B

17S1-BADA
ECTS: 5.50
CYCLE:
2023Z

Databases

The number of ECTS credits awarded consists of:

1. Contact hours with an academic teacher:

- participation in: Lecture30	.0 h
- participation in: Laboratory exercises45	.0 h
- consultations5	.0 h
	TOTAL: 80.0 h

2. Student's independent work:

Preparation for exam, colloquium, own work	57.50 h
	TOTAL: 57.5 h

Contact hours + independent student work TOTAL : 137.5 h

1 ECTS credit = 25-30 h of average student work, number of
ECTS credits= 137.5 h : 25.0 h/ECTS = 5.50 ECTS

Average: **5.5 ECTS**

- including number of ECTS credits for contact hours with direct participation of academic teacher	3.20 ECTS credits
- including the number of ECTS credits for hours of independent student work	2.30 ECTS credits