



COURSE DESCRIPTION CARD - SYLLABUS

Course name

Databases

Course

Field of study

Safety Engineering

Area of study (specialization)

Level of study

First-cycle studies

Form of study

full-time

Year/Semester

2/4

Profile of study

general academic

Course offered in

Polish

Requirements

elective

Number of hours

Lecture

15

Tutorials

Laboratory classes

30

Projects/seminars

Other (e.g. online)

Number of credit points

5

Lecturers

Responsible for the course/lecturer:

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Responsible for the course/lecturer:

Prerequisites

The student starting this subject should have a basic knowledge of the basics of programming, computer



system architecture and operating systems. He should also be able to obtain information from specified sources and be willing to cooperate as part of a team.

Course objective

To provide students with basic knowledge of database system technology necessary for the proper design, use and implementation of database systems and their applications. Developing students' ability to solve problems arising when managing database systems.

Course-related learning outcomes

Knowledge

1. knows development trends and best practices in the field of database system technologies and database management systems. [P6S_WK_03]
2. knows the basic concepts and principles of copyright protection, information security and intellectual property protection in relation to database system technologies and database management systems. [P6S_WK_05]

Skills

1. is able to use analytical, simulation and experimental methods to formulate and solve engineering tasks, also using database methods and tools. [P6S_UW_04]
2. is able to plan, design, conduct experiments, computer simulations, interpret obtained results and draw conclusions. [P6S_UO_01]

Social competences

1. is able to initiate activities related to the formulation and transfer of information and cooperation in society in the field of design and management of database systems. [P6S_KO_02]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Knowledge acquired during lectures is verified by one test that takes place during the last class. The test consists of 12 questions with various points. Passing threshold: 50% of correct answers. Assessment issues include only material from lectures.

Skills acquired as part of the laboratory classes are verified by the test, which takes place during 7th classes (after learning MS Access ; passing threshold: 50%) and by the database design in MS Access, performed during classes in the second half of the semester (ready project given in the last class).

Programme content

Lectures:

1. database system environment (concepts, database management system, database functions, evolution of database management system, database models, evolution of data processing, types of databases, query languages).



2. basics of working with a database (MS Access - objects, relationships, structure, normalization, design principles).
3. modeling of relational databases (relational database model, algebraic query language, theory of relational database design, logical design, query languages).
4. language of SQL databases (languages, commands, joins of tables).
5. semistructural data model.

Laboratory (computer) classes:

Designing a database using MS Access (designing database objects by various methods, relationships, filling tables with data, input masks, designing various types of queries, designing forms using controls, reports, macros, interface, usability, functionality, ease of use of the database)

Teaching methods

Lectures: multimedia presentation - text, drawings, diagrams, tables, explanatory examples.

Laboratory (computer): following the teacher's instructions, supported by multimedia presentation.

Bibliography

Basic

1. Kopertowska Mirosława, 2007. Europejski Certyfikat Umiejętności Komputerowych. Bazy danych. PWN, Warszawa.
2. Ullman Jeffrey D., Widom Jennifer, 2001. Podstawowy kurs systemów baz danych. Helion, Gliwice.
3. Czapla Krystyna, 2015. Bazy danych. Podstawy projektowania i języka SQL. Helion, Gliwice.
4. Stones Richard, Matthew Neil, 2003. Od podstaw bazy danych i MySQL. Helion, Gliwice.

Additional

1. Chmielarz Witold, 1996. Systemy informatyczne wspomagające zarządzanie. Aspekt modelowy w budowie systemów. Elipsa, Warszawa.
2. Elmasri Ramez, Navathe Shamkant B., 2019. Wprowadzenie do systemów baz danych. Wydawnictwo Helion.
3. Mendrala Danuta , Szeliga Marcin, 2016. Access 2016 PL. Kurs. Wydawnictwo Helion.
4. Mendrala Danuta , Szeliga Marcin, 2015. Access 2016 PL. Ćwiczenia praktyczne. Wydawnictwo Helion.



Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,0
Classes requiring direct contact with the teacher	50	2,0
Student's own work (literature studies, preparation for tests, project preparation) ¹	75	3,0

¹ delete or add other activities as appropriate