



Name of module/subject	Code
Database system I	

COURSE DESCRIPTION CARD

Field of study Computing science		Training profile (general academic/practical) practical	Year / Semester III/6
Specialization IT systems		Subject offered in: Polish	Course (obligatory/optional) obligatory
No. of lecture hours: 15 No. of laboratory hours: 30			ECTS 3
Cycle of studies: first	Form of studies (full time/weekends) Full time	Field of studies technical sciences, computer science, automation and robotics, electronics, telecommunications, electrotechnics, mathematics	
Status of subject in curriculum (basic, specialized, other) Basic sciences		(general academic, from other department) general academic	
Unit providing the training: Institute of Computing Science and Telecommunication			
Lecturer in charge of the subject: dr hab. Inż. Piotr Remlein			
Initial requirements in knowledge, skills, social competences:			
1	Knowledge:	Has a basic knowledge of computer networks; Has a basic knowledge of C# programming, algebra of sets and relation algebra. K_W03 K_W07 K_W09	
2	Skills:	Is able to find information in literature, as well as other reference sources; is able to integrate and interpret obtained information, draws conclusions and justifies. K_U09	
3	Social competences	Student understands a necessity to acquire a new knowledge and skills stemming from a chosen field of studies. K_K01	
The aim of the subject: To provide students with database models, SQL and PL SQL languages, query formats, embedded functions and extensions. To prepare students to database optimization and programming database applications.			
Training outcomes			
Knowledge As a result of the training course a student is able to:			Reference to field-related training outcomes
1	Knows the principles of construction of computer programs; has knowledge from the area of computing science; knows the syntax of C++.		K_W10
2	Has a basic knowledge of network device architectures, standards, network protocols and construction. Knows network layer, transport layer and application layer protocols		K_W11

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3	Has a systematic knowledge of databases. Knows the database management system principles and structured query languages.	K_W05, K_W08
4	Has knowledge of logical database models: hierarchical, network, relational, object. Diagrams of entity relationship models (entities, attributes, relationships), the relationships' properties. Database development trends	K_W08, K_W15
5	Has knowledge of SQL queries: simple, with nested units, with connectors.	K_W08, K_W15

Skills As a result of the training course a student is able to:		Reference to field-related training outcomes	
1	Student is able to find information in literature, as well as other reference sources	K_U01	
2	Student is able to use future SQL extensions and normal form for solving data base optimization problem	K_U21	
Competences As a result of the training course a student is able to:		Reference to field-related training outcomes	
1	Demonstrates responsibility for designed software. Is aware of the hazards they pose for individuals and communities if they are improperly designed.	K_K01	
2	Student is able to formulate opinions concerning challenges of contemporary networks application programming; A student is aware of the impact of network application on the information society.	K_K02	
3	Student is aware of the main challenges facing ICT systems in the 21st century. Is aware of the impact electronics and ICT systems and networks will have on the development of the information society	K_K03, K_K01	
Accepted grading criteria			
Local grade	Local definition	ECTS grade	ECTS definition
5	Bardzo dobry [very good]– perfect knowledge, skills, competences	A	Celujący [exemplary] – extraordinary achievements
4,5	Dobry plus [good plus]– very good knowledge, skills, competences	B	Bardzo dobry [very good] – above average standards with some mistakes
4	Dobry [good] – good knowledge, skills, competences	C	Dobry [good] – general good work with some noticeable mistakes
3,5	Dostateczny plus [satisfactory plus] – satisfactory knowledge, skills, competences but with significant shortcomings	D	Zadowalający [satisfactory] – satisfactory but with significant mistakes

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3	Dostateczny [satisfactory] – satisfactory knowledge, skills, competences but with numerous shortcomings (threshold 60% of the requirements)	E	Dostateczny [satisfactory] – outcomes meet minimal criteria
2	Niedostateczny [insufficient] – insufficient knowledge, skills and competences (below 60% of the requirements)	FX, F	Niedostateczny [insufficient] – basic shortcomings in material

Assumed grading methods

Forming assessment:

Lectures: Written exam; exam is passed when student receives at least 50% points. Exam can be taken after the completion of exercises.

Laboratories:

- evaluation and assessment of knowledge increment that need to be effective in solving problems covering all tasks within a given subject area;
- continuous assessment during daily classroom practice - rewarding knowledge increment in skills in management of using rules and methods learnt in class.

Curriculum content

Lectures:

1. Definitions: information, data, data processing. Database models. Database management systems.
2. Relation algebra.
3. SQL basis, views, sequences, triggers, indexes.
4. Embedded SQL functions, PL SQL.
5. Database users, access to databases.
6. Overview of DBMS.
7. Database applications.

Laboratory:

1. Database definitions.
2. Simple SQL queries.
3. Database modifications.
4. Extended SQL queries.
5. PL SQL procedures
6. Database applications.

Self-studying:

Study the literatures and appropriate papers.



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Main bibliography:

1. Hernandez, Michael J., Database design for mere mortals: a hands-on guide to relational database design, Addison-Wesley 2005
2. Richard Stones, Neil Matthew, Bazy Danych i MySQL, Helion, Gliwice 2003

Supplementary bibliography:

1. Jason Price, Oracle Database 11gSQL, McGrawHill 2008
2. PL/SQL User's Guide and Reference, Release 2 (9.2) Part No. A96624-01

Student's involvement

Form of activity	Hours	ECTS
Total number of hours	75	3
Hours requiring direct contact with a lecturer	50	2
Activities requiring self-studying	25	1