FACULTY OF COMPUTER SCIENCE AND MANAGEMENT

SUBJECT CARD

Name in Polish: **Technologia przetwarzania danych**
Name in English: **Data processing technology**
Main field of study (if applicable): **Management**
Specialization (if applicable): **Organizational management**
Level and form of studies: **1st level, full-time**
Kind of subject: **optional**
Subject code: **IEZ1208**
Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU)	**15**		**30**		
Number of hours of total student workload (CNPS)	**60**		**60**		
Form of crediting	**crediting with grade**		**crediting with grade**		
For group of courses mark (X) final course					
Number of ECTS points	**2**		**2**		
including number of ECTS points for practical (P) classes			**2**		
including number of ECTS points for direct teacher-student contact (BK) classes	**0,5**		**1**		

*delete as applicable

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES
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1. Knows the functional and hardware structures of computers, the concept and the classification of computer software.
2. Capable of using computers, working in the operation system graphical environment using application programs.

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SUBJECT OBJECTIVES
C1 To get knowledge about relational data bases and ways of creating and using them in practice.
C2 To acquire capability to create and use of relational database systems for geting information ad hoc for company management purposes.
C3 To acquire social competences specific for the applications of database systems in management information systems.

SUBJECT EDUCATIONAL EFFECTS	
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relating to knowledge:

PEK_W01. Knows the relational data base structure and basic problems of their creating and using.

PEK_W02. Knows operations of the relational algebra as a basis of the relational database system functioning. in data gathering, memorizing and distributing.

PEK_W03. Knows a data base graphical user interface.

relating to skills:

PEK_U01 Capable to implement a simple relational data base system.

PEK_U02 Capable to get information ad hoc from the relational database system by defining in the data base graphical user interface data retrieval processes.

relating to social competences:

PEK_K01 Capable unaided to develop her/his knowledge and skills, to collaborate and to work in groups, ready to identify, analyze and solve problems in the area of the application of the database systems in management problems solving.

PEK_K02. Capable professionally to find and chose problem solving methods, to take the responsibility for them, pass over, convince and defend own views connecting with the application of the database systems in management problems solving.

PROGRAMME CONTENT	
Form of classes - lecture	**Number of hours**
Lec 1	Relational database technology. Data base management system. Relational data base and its structure. Update data operations. Integrity constraints.	2
Lec 2	Definition, application and implementation of operation on tables: selection, projection, equi-join. Superposition of selection, projection and equi-join operations.	2
Lec 3	Definition, application and implementation of operation on tables: set-theoretic operations: union, intersection, unsymmetrical difference, complement.	2
Lec 4	Definition, application and implementation of operation on tables: division and theta-join.	2
Lec 5	Interpretation of queries given in a natural language and planning of the data processing process. Optimizing of the data processing process.	2
Lec 6	Update anomalies. Table decomposition, schema decomposition.	2
Lec 7	Functional dependences between data in tables and their types. Use of the functional dependences in data base schema design.	2
Lec 8	Written test (P)	1
	Total hours	15
Form of classes - class	**Number of hours**
Cl 1		
Cl 2		

Cl 3		
	Total hours	

Form of classes - laboratory		Number of hours
Lab 1	Sample database management system and its functions; creating a data base; defining of the data base table structures.	2
Lab 2	Defining of the data properties, primary and additional keys. Applying of integrity constraints in the data base design and verifying the data base management system control functions.	2
Lab 3	Forms, their application, types and structure. Form implementation.	2
Lab 4	Practical test (F1).	2
Lab 5	Trading company data base case study. Tables and relationships. Primary and additional keys.	2
Lab 6	Select and make table queries. Defining queries. Query properties.	2
Lab 7	Defining of the one table search process. Implementation of the selection and projection operations.	2
Lab 8	Defining of the many tables search process. Defining of the virtual columns, data grouping, selecting and aggregating, aggregation functions.	2
Lab 9	Practical test ((F2).	2
Lab 10	Defining of the tables union processes. Append queries. The set-theoretic union operation implementation.	2
Lab 11	Defining of the tables intersection processes. The set-theoretic intersection operation implementation.	2
Lab 12	Defining of the tables difference processes. Delete queries. The set-theoretic difference operation implementation.	2
Lab 13	Implementation of the complement operation. Reports, their application, types and structures. Report implementation.	2
Lab 14	Practical test ((F3).	2
Lab 15	Summary. Credit.	2
	Total hours	30

Form of classes - project		Number of hours
Proj 1		
Proj 2		
Proj 3		
	Total hours	

Form of classes - seminar		Number of hours
Sem 1		
Sem 2		
Sem 3		
	Total hours	

TEACHING TOOLS USED
N1. Lecture
N2. Multimedia presentation
N3. Laboratory instruction
N4. Instruction during classes
N5. Attitude and behawior of the teacher
N6. Workstation with graphical operation system MS Windows and MS Access
N7. Practical test
N8. Written test

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation (F – forming (during semester), P – concluding (at semester end)	Educational effect number	Way of evaluating educational effect achievement
F1	PEK_W01 PEK_U01	Practical test
F2	PEK_W02 PEK_W03 PEK_U01 PEK_U02	Practical test
F3	PEK_W02 PEK_W03 PEK_U01 PEK_U02	Practical test
P	PEK_W01 PEK_W02 PEK_W03 PEK_K01(partialy) PEK_K02(partialy)	Written test
P=1, F=3		

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

[1] Jeffrey D. Ullman, Jennifer Widom. A first course in database systems. Upper
    Saddle River : Prentice Hall, 1997.
[2] Witold Rekuć Laboratory instruction
[3] Witold Rekuć Multimedia presentation

SECONDARY LITERATURE:

[4] C. J. Date. An introduction to database systems. Boston [etc.] : Pearson
    Addison Wesley, cop. 2004

SUBJECT SUPERVISOR (NAME AND SURNAME, E-MAIL ADDRESS)

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MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT
Data processing technology

AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY Management
AND SPECIALIZATION Organizational management

Subject educational effect	Correlation between subject educational effect and educational effects defined for main field of study and specialization (if applicable)**	Subject objectives***	Programme content***	Teaching tool number***
PEK_W01	K1_ZARZ_W24, K1_ZARZ_W25, K1_ZARZ_W26	C1, C2	Lec 1, Lec 2, Lec 3, Lec 4, Lec 5, Lec 6, Lec 7	N1, N2, N8
PEK_W02	K1_ZARZ_W24, K1_ZARZ_W25, K1_ZARZ_W26	C1, C2	Lec 1, Lec 2, Lec 3, Lec 4, Lec 5, Lec 6, Lec 7	N1, N2, N8
PEK_W03	K1_ZARZ_W24, K1_ZARZ_W25, K1_ZARZ_W26	C1, C2	Lec 1, Lec 2, Lec 3, Lec 4, Lec 5, Lec 6, Lec 7	N1, N2, N8
PEK_U01	K1_ZARZ_U12, K1_ZARZ_U15, K1_ZARZ_U16, K1_ZARZ_U17	C1, C2	Lab 1, Lab 2, Lab 3, Lab 5, Lab 6, Lab 7, Lab 8, Lab 10, Lab 11, Lab 12, Lab 13	N3, N4, N6, N7
PEK_U02	K1_ZARZ_U12, K1_ZARZ_U15, K1_ZARZ_U16, K1_ZARZ_U17	C1, C2	Lab 1, Lab 2, Lab 3, Lab 5, Lab 6, Lab 7, Lab 8, Lab 10, Lab 11, Lab 12, Lab 13	N3, N4, N6, N7
PEK_K01	K1_ZARZ_K01, K1_ZARZ_K02, K1_ZARZ_K04	C3	In connection with all programme content	In connection with all teaching tools
PEK_K02	K1_ZARZ_K03, K1_ZARZ_K05, K1_ZARZ_K06	C3	In connection with all programme content	In connection with all teaching tools