

FACULTY OF ELECTRICAL
ENGINEERING**SUBJECT CARD**

Name in Polish: **Systemy baz danych**
 Name in English: **Database systems**
 Main field of study (if applicable): **Control Engineering and Robotics**
 Specialization (if applicable):
 Level and form of studies: **1st level, full-time**
 Kind of subject: **optional**
 Subject code: **ARR041305**
 Group of courses: **NO**

	Lecture	Classes	Laboratory	Project	Seminar
Number of hours of organized classes in University (ZZU):	15			15	
Number of hours of total student workload (CNPS):	30			30	
Form of crediting:	crediting with grade			crediting with grade	
For group of courses mark (X) final course:					
Number of ECTS points:	1			1	
including number of ECTS points for practical (P) classes :				1	
including number of ECTS points for direct teacher-student contact (BK) classes:	0.70			0.70	

PREREQUISITES RELATING TO KNOWLEDGE, SKILLS AND OTHER COMPETENCES

1. has basic computer literacy
2. has basic knowledge about searching for technical information
3. is able to write computer programmes based on given algorithm
4. recognises the need of continuous education, developing professional, personal and social competences and it able to define opportunities to do so

SUBJECT OBJECTIVES

- C1. introduction to design data bases of data-centric systems
 C2. introduction to technological aspect of using modern data-centric systems
 C3. acquisition of decision-making skills in respect of designing databases

SUBJECT EDUCATIONAL EFFECTS*relating to knowledge:*

- PEK_W01 has knowledge about data exchange for engineering purposes
 PEK_W02 knows the basics of designing relational database for purposes of information processing and monitoring

relating to skills:

- PEK_U01 is able to source information about designing relational databases from literature and other sources
 PEK_U02 can design and program an example of a relational database

relating to social competences:

- PEK_K01 is able to think and action in a creative and enterprising manner

PROGRAMME CONTENT

Form of classes - lecture		Number of hours:
Lec 1	Objectives and tasks of database for engineering purposes. Multitasking of processes in modern computer systems. Information and technological resource sharing	2
Lec 2	Data structure. Relational databases. Entity relationship diagram. Relationships between entities. One-to-One Relationships, One-to-Many Relationships, Many-to-Many Relationships.)	2
Lec 3	Professional management system illustrated with an example of IDS (Infomix Dynamic Server) running Windows Server. Elements of database management systems (DBMS)	2
Lec 4	Developing network databases. Standard SQL (Structured Query Language). Tables, establishing primary and foreign keys. Table merging.	2
Lec 5	Queries, search queries, perspectives, clauses and transactions.	2
Lec 6	Creating forms and reports for websites	2
Lec 7	Security levels of data-centric systems. Data protection. Roles of database management systems administrators and privileged users (DBA).	2
Lec 8	Final test	1
Total hours:		15

Form of classes - project		Number of hours:
Proj 1	Project of relational database developed by students individually or in groups of two. Project subjects are proposed by students and approved by class teachers after establishing all details. Each project consists of the following stages: developing an actual model, standardisation and algorithmization of database, SQL programming, launching and testing the end-user application, preparing documentation	14
Proj 2	Assessment of the project	1
Total hours:		15

TEACHING TOOLS USED

- N1. introductory lecture with slideshow and elements of e-learning
 N2. students code case-based programmes both individually and in teams
 N3. remote self-education - <http://eportal.eny.pwr.edu.pl> - partial and final test
 N4. consultation

EVALUATION OF SUBJECT EDUCATIONAL EFFECTS ACHIEVEMENT

Evaluation <i>F - forming (during semester) P - concluding (at semester end)</i>	Educational effect number	Way of evaluating educational effect achievement
F1(w)	PEK_W01 PEK_W02	Remote self-teaching - partial test. E-learning platform: http://eportal.eny.pwr.edu.pl
F2(w)	PEK_W01 PEK_W02	Final test (final) in the presence conduct classes in the computer lab. Educational platform: http://eportal.eny.pwr.edu.pl
P(w)	$P=0.15 \times F1 + 0.85 \times F2$	
F1(P)	PEK_U01 PEK_U02 PEK_K01	Drafting interim papers electronically. E-learning platform: http://eportal.eny.pwr.edu.pl
P(P)	$P=F1$	

PRIMARY AND SECONDARY LITERATURE

PRIMARY LITERATURE:

- [1] Bazy danych, W. Harris, WNT (any edition)
- [2] Wprowadzenie do systemów baz danych, C.J. Date, WNT (any edition)
- [3] Platforma edukacyjna: <http://eportal.eny.pwr.edu.pl>
- [4] Net-literature

SECONDARY LITERATURE:

- [1] SQL Język relacyjnych baz danych, Wellesley Software, WNT (any edition)
- [2] Programowanie w PHP, Helion, (any edition)
- [3] JAVA Kompendium programisty, Helion, (any edition)

SUBJECT SUPERVISOR

Jarosław Szymańda, jaroslaw.szymanda@pwr.edu.pl

MATRIX OF CORRELATION BETWEEN EDUCATIONAL EFFECTS FOR SUBJECT
ARR041305 - Database systems
AND EDUCATIONAL EFFECTS FOR MAIN FIELD OF STUDY **Control Engineering and Robotics**

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	K1AiR_W15	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.3 N.4
PEK_W02	K1AiR_W15	C.1 C.2	Lec1 Lec2 Lec3 Lec4 Lec5 Lec6 Lec7	N.1 N.3 N.4
PEK_U01	K1AiR_U13	C.2 C.3	Proj1	N.2 N.4
PEK_U02	K1AiR_U13	C.2 C.3	Proj1	N.2 N.4
PEK_K01	K1AiR_K01	C.2 C.3	Proj1	N.2 N.4