POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Database Application Programming [S1EiT1E>PABAZ]

Course

Field of study	Year/Semester
Electronics and Telecommunications	3/6
Area of study (specialization)	Profile of study
–	general academic
Level of study	Course offered in
first-cycle	English
Form of study	Requirements
full-time	elective

Number of hours

Lecture	Laboratory classes	Other
15	15	0
Tutorials	Projects/seminars	
0	0	

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

The student has a basic knowledge of computer networks and a basic knowledge of C# programming, algebra of sets and relation algebra. Student 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. Student understands a necessity to acquire a new knowledge and skills stemming from a chosen field of studies.

Course objective

To provide students with database models, SQL and PL SQL languages, query formats, embeded functions and extensions and programming database applications.

Course-related learning outcomes

Knowledge:
1. Has a systematic knowledge, together with necessary mathematical background, on algebra of sets and relation algebra.
2. Has a systematic knowledge, with the necessary theoretical background, of optimization methods used in solving engineering problems.

3. Students got knowledge of entity relationship diagrams and database models.
4. Students got knowledge of database tuning.
Skills:
1. Students are able to use bibliography in English (books, scientific and technical journals, application notes, catalogs, instructions, recommendations etc.).
2. Students can use optimization methods to solve problems in electronics and telecommunications.
3. Students are able to prepare database structure and implement it using SQL and PL SQL.
4. Students can use optimization methods to reduce database complexity.
Social competences:
1. Understands the importance of communication for the development of individuals and societies, understands the evolutionary development of networks and telecommunications systems include increased needs of users in the development of telecommunications networks.
2. Knows the limitations of their own knowledge and skills, he understands the need for further education.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Student"s knowledge is verified during test (either written or oral). Test in the written form contains 7- 10 questions (open questions and multi-choice questions) with different points assigned to each question. There are three or four groups of points. In oral test a student draws one question from each group. Moreover, for each drawn question an extra question (related to drawn question) may be asked. Ratting for each question (drawn question and extra question are considered together) depends on range and depth of understanding of a problem. In both, written and oral form, for the test 50-60 questions are prepared. The test is passed if the a student gets at least 50% of the total score.

Verification of student skills is conducted through project that is realized during the last laboratory.Project is divided into 5-6 tasks with different points assigned to each task. All task form a whole problem but can be realized separately. Particular tasks are ratting separately. For a pass, student need to get at least 50% of the total score.

Grading scale:
number of points grade
<=50 % 2,0
51% - 60% 3,0
61% - 70% 3,5
71% - 80% 4,0
81% - 90% 4,5
91% - 100% 5,0

Programme content

The program includes basic information about databases. It discusses relational databases in detail. It presents basic SQL commands and also introduces popular database tools and development software.

Course topics

Lectures:
1. SQL basis, views, sequences
2. Embedded SQL functions
3. Extendend SQL queries
4. PL SQL, T-SQL
5. Triggers, indexes
6. Database users, access to databases.
7. Elements of database applications.

Laboratory classes:
1. Database definitions
2. Simple SQL queries
3. Database modifications

4. Extended SQL queries
5. PL SQL procedures
6. PL SQL Triggers

Teaching methods

Lectures:
a) multimedia presentation with addtional examples presented and expalined on a board,
b) case study based on the presentation with usage of SQL tools

Laboratory classes:
a) practical programming exercies with computers and SQL tools,
b) short multimedia presentations

Bibliography

Basic
1. Li Yan, Zongmin Ma, Advanced database query systems : techniques, applications and technologies, Hershey : Information Science Reference, 2011.
2. Oracle, Database SQL Language Reference, online: https://docs.oracle.com/database/121/SQLRF/toc.htm.

Additional
1. Jason Price, Oracle Database 11gSQL, McGrawHill 2008
2. PL/SQL Users Guide and Reference, Release 2 (9.2) Part No. A96624-01
3. Joe Celko, The Guru"s Guide to Transact-SQL, Addison-Wesley Professional; 1st edition (March 4, 2000)

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	31	2,00
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	44	1,00