POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Informatics [S1IMat1>Inform]

Course

Field of study
Materials Engineering

Year/Semester
1/1

Area of study (specialization)
–

Profile of study
general academic

Level of study
first-cycle

Course offered in
Polish

Form of study
full-time

Requirements
compulsory

Number of hours

Lecture
15

Laboratory classes
15

Other
0

Tutorials
0

Projects/seminars
0

Number of credit points

3,00

Coordinators

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Lecturers

Prerequisites

It has knowledge of the construction and operation of a computer. It can operate a computer, know how to use the basic tools of MS Office to support engineering activities. It has a sense of responsibility for their own work, to understand the need to learn and acquire new knowledge.

Course objective

Understanding theoretical and practical problems associated with the design and application engineering databases in the enterprise.

Course-related learning outcomes

Knowledge:
defines, distinguishes and classifies the basic concepts in the area of database design - [k_w04]
a distinction is called, characterizes and describes the database systems and issues related to them - [k_w04, k_w05]
suggests the use of database systems for different areas of the enterprise - [k_w04, k_w05]

Skills:

can design a relational database for different areas of the enterprise - [k_u02, k_u13, k_u18]
able to carry out the implementation of engineering database in ms access - [k_u02, k_u07]
able to handle the database (enter, edit or delete data) - [k_u01]

Social competences:
it is aware of the role of computerization in the activities of engineering - [k_k07]
can independently develop knowledge concerning - [k_k04]

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
Intermediate rating:
laboratory: on the basis of an assessment of the progress of laboratory tasks
lecture : based on answers to questions about the material discussed in previous lectures.
Summary rating:
laboratory: credit based on tasks performer during laboratory (credit on computer workstation) and the implementation of the report of the exercises. The student must obtain a positive assessment of the executed report
lecture: credit based on test consisting of open questions in a scale 0-1. Test is passed after obtaining at least 55% of all points. Discussion of the test results. Test is carried out at the end of the semester.

Programme content

Principles of database design (concepts, definitions, characteristics,
classification).
The data models.
Design methodology.
Relational databases

Course topics

Lecture:
1. Basic knowledge and principles of database design (concepts, definitions, characteristics,
classification).
2. The data models: hierarchical, network, relational, object-oriented.
3. Design methodology.
4. The tools for building database systems.
5. The use of databases in the enterprise (the role of databases, requirements, organization of data,
examples of applications).
6. Database management systems (organization of external memory, index files, queries and their
optimization, data integrity and ways of ensuring transactions, blocking, reliability of databases,
protection of data against unauthorized access).
7. Introduction to SQL.
8. Distributed databases.
Laboratory:
1. Transforming Object-union model to the relational model using tools.
2. Enter data into the sample database.
3. Implementation of the relational model in MS Access (create relationships, relationships and giving
referential integrity).
4. Building queries.
5. Create a sample forms and queries.
6. The execution of user interface database.

Teaching methods

Lecture: multimedia presentation illustrated with examples given on a board, problem solving.
Laboratory: solving tasks at the computer. Practical exercises and discussion.

Bibliography

Basic

1. P. Beynon-Davies, Systemy baz danych, WNT, Warszawa, 1998
2. Hamrol A. (red.) Elementy informatyki dla inżynierów mechaników, Wydawnictwo Politechniki Poznańskiej, Poznań, 2001
3. Rojek-Mikołajczak I, Bazy danych, Wydawnictwo Akademii Bydgoskiej, Bydgoszcz, 2004
4. Mark Whitehorn, Bill Marklyn, Relacyjne bazy danych, Helion. Warszawa 2003

Additional

1. Fundamentals of database systems, R. Elmasri, S. B. Navathe , The Benjamin/Cummings Publishing Company, Redwood City CA 94065 , 1994

Breakdown of average student's workload

	Hours	ECTS
Total workload	75	3,00
Classes requiring direct contact with the teacher	40	1,60
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	35	1,40