

Title Databases	Code 1010331451010330641
Field Computer Science	Year / Semester 3 / 5
Specialty -	Course core
Hours Lectures: 2 Classes: - Laboratory: - Projects / seminars: 1	Number of credits 5
Language polish	

Lecturer:

Tadeusz Pankowski, Ph.D., D.Sc.
Institute of Control and Information Engineering
ul. Piotrowo 3A
60-965 Poznań
tel. +48 (61) 665 3592
e-mail: Tadeusz.Pankowski@put.poznan.pl

Faculty:

Faculty of Electrical Engineering
ul. Piotrowo 3A
60-965 Poznań
tel. (061) 665-2539, fax. (061) 665-2548
e-mail: office_deef@put.poznan.pl

Status of the course in the study program:

Obligatory course, Faculty of Electrical Engineering, field of Informatics.

Assumptions and objectives of the course:

Advanced issues of database management and creation of database applications.

Contents of the course (course description):

Transaction processing; ACID rules; isolation levels; locking techniques for concurrency control, two phase locking (2PL). Concurrent transactions in commercial DBMS. Recovery techniques. Distributed transactions, two phase commitment (2PC). Security and authorization in database systems. Indexes in databases: multilevel indexes and indexes based on B-trees, hash-based indexes. Advanced programming in SQL. Selected tools of database administrator. Database implementation techniques; the system catalogue; query processing and optimization. XML databases. Designing of XML databases. XML functional dependencies (XFD) and XML normal form (XNF). XML data processing languages: XPath and XQuery. Indexes for XML databases.

Introductory courses and the required pre-knowledge:

Databases (part 1) and operating systems. Programming in the client-server architecture. Fundamentals of XML.

Courses form and teaching methods:

Lectures illustrated with slides. Designing and programming of database applications (using MS SQL Server and .NET environment).

Form and terms of complete the course - requirements and assessment methods:

Examinations, database projects and creation of database applications.

Basic Bibliography:

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Additional Bibliography:

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