

Advanced Topics in Database Systems

Prof. Ehud Gudes
Dept. of Computer Science
Ben-Gurion University, Beer-Sheva
Telephon: 07-6461626, email: ehud@cs.bgu.ac.il

Database systems have developed considerably over last few years. On the one hand, database systems are now used to support complex applications such as CAD/CAM, Engineering or Georaphic databases. On the other hand, the technology has advanced to support distributed databases, database machines and object-oriented databases. The course will survey first some of the important issues in implementing traditional, centralized database systems, and then we will discuss issues concerning the new applications and the new architectures.

The pre-requisite to this course is the introductory course on Database systems. Its possible to enter the course without this prerequisite but it is assumed that students will complete the missing material themselves. Preliminary list of topics in this course follows (no promise that all of them will be covered):

- Review of database and DBMS concepts
- The database design process
- Physical design - new storage structures
- Implementation of Relational operators and query optimization
- Concurrency - centralized, Recovery - centralized
- Security and integrity
- Distributed databases
- Object-oriented Databases
- New applications - Cad, Engineering databases, Logic and databases
- Datalog and Expert databases¹, Web Databases

The main book used in this course is:

Raghu Ramakrishnan, Database Management Systems McGraw-Hill,

Another good book is:

J. Ullman, Principles of Database and Knowledge-base Systems Vols 1,2,
Computer Science Press,1989.

Finally, it will be required to purchase my "Hovereth" on the subject from the Open University (Purchase details will be provided).

The course requirements include several theoretical and practical excersizes. A final exam (mandatory for undergraduates) or a final paper/project will compose 50% of the grade.