1 Course Name

course ts2964 Database systems
time

2 Instructor

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3 Course conduct

Lectures and labs.

4 Evaluation

1. labs and exercises: 20%
2. programming projects: 20%
3. midterms (2 midterms): 30%
4. final: 30%

5 References

A First Course in Database Systems, Third Edition (book web site) J.D. Ullman and J. Widom; Prentice Hall, 2008.

6 Course Objective

By the end of this course, the students should be able to;

1. differentiate the file concept with the database concept
2. discuss the advantages of databases
3. eloborate on the database development cycle
4. use ER modelling

5. use normalization in modelling
6. use SQL for query database
7. identify issues related to data integrity, transaction security, data concurency

7 Course synopsis

The course is an introduction to the database system concepts and its uses. Among the contents for the course includes introduction to database, database environment, database development cycle, entity-relation model, structured query language.

The course will use open source database such as MySQL and sqlite3 as a demonstration.

We will cover the relational model, relational algebra, and SQL, the standard language for creating, querying, and modifying relational and object-relational databases.

We will also learn about XML data, including the XML languages XPath, XQuery, and XSLT. The UML approach to database design will be covered, as well as relational design principles based on functional dependencies and normal forms. A variety of other issues important to database designers and users will be covered, including indexes, views, transactions, authorization, integrity constraints, and triggers.

Finally, we will cover several advanced topics such as data warehousing, data mining, data stream processing, and uncertain data.

Exercises, query exercises, and written challenge problems would be given. Students are also required to build a database-backed web application.

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