

# Syllabus

## Course

**Code:** *CIS 440*  
**Name:** *Advanced Database Systems*

## Credits

3-0-0-3

## Text Books

- 1- Ramez Elmasri, Shamkant Navathe, Fundamentals of Database Systems, 6th Edition, ISBN-13: 978-0-13-608620-8, Addison-Wesley, 2011
- 2- Thomas M. Connolly, Carolyn E. Begg, Database Systems: A Practical Approach to Design, Implementation and Management, 5/E, ISBN-13: 9780321523068, Addison-Wesley, 2010
- 3- Jeffrey A. Hoffer, V. Ramesh, Heikki Topi, Modern Database Management 10th Edition, ISBN 0136088392 9780136088394, Prentice Hall, ©2011

## Prerequisite:

CIS 340 Database systems

## Course Description

This course provides a comprehensive overview of the internal mechanisms of Database Management Systems (DBMS) and other systems that manage large data collections. The main topics include: Database Security and Authorization, Concepts for Object Databases, Enhanced Data Models for Advanced Applications, Distributed Databases and Client-Server Architectures, xml and Internet Databases, Data Mining Concepts, Data Warehousing and OLAP, Emerging Database Technologies and Applications.

## Objectives:

- 1- Understand transaction processing concepts
- 2- Understand concurrency and recovery of database transactions .
- 3- Understand the security issues of database systems and implement proper security measures in database systems.
- 4- Apply object-relational data model concepts in database modeling and design .
- 5- Understand the architecture of distributed and replicated database systems .
- 6- Understand the basics of data warehousing and data mining .
- 7- Understand the basics of new trends such as: XML in relational databases, Mobile Databases, Multimedia Databases, Geographic Information Systems, and Genome Data Management

## Course Outline

<b>Week</b>	<b>Lecture Topics</b>
1	Design Methodology and Use of UML Diagrams.
2	Practical Database Design and Tuning
3	Introduction to Transaction Processing Concepts and Theory
4	Concurrency Control Techniques
5	Database Recovery Techniques
6	Concepts for Object Databases
7	Database Security and Authorization
8	Enhanced Data Models for Advanced Applications
9	Client-Server Architectures
10	Distributed Databases
11	Databases on the Web.
12	Xml and Internet Databases
13	Data Mining Concepts
14	Overview of Data Warehousing and OLAP
15	Review

## Grading

### Assessment/Evaluation:

1. Quizzes (3)	(15%)
2. Assignment (3)	(15%)
3. Midterm-1 Exam.	(15%)
4. Midterm-2 Exam.	(15%)
5. Final Exam.	(40%)
<b>Total</b>	<b>(100%)</b>

## Method of Teaching:

- Lectures - 15 weeks (3 hrs per week).
- Quizzes
- Home works
- Exams