



**UNIVERSITY OF NEW YORK IN TIRANA**  
**Course Syllabus**

**Course: Database Systems** (4 credit hours)  
**Professor:** Narasimha Rao V  
**Office Hours: Monday 10 AM to 4 PM or By Appointment.**  
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**Catalog Description**

This course deals with Database design, entity-relationship and relational model, relational algebra, query language SQL, storage and file structures, query processing, system architectures.

**Prerequisite:** Data Structures.

**Course Purpose**

This course focuses on the design of a database starting from the conceptual design to the implementation of a database schema and user interfaces to the database. The course is heavily design oriented. In most of the projects, students have to design and implement a database using a commercial database management system and associated development tools. Students will in particular learn the database query language SQL and the development of applications using PL/SQL. The database software used in this course is Oracle 10g (SQL, PL/SQL) and SQL Server 2005.

**Required Readings, Text**

A. Silberschatz, H.F. Korth, S. Sudarshan : *Database System Concepts* (5th Edition)  
McGraw-Hill

**Required Additional Materials**

Students will be provided additional study material as and when required.

**Course Objectives**

**Upon completion of this course, students should be able to:**

- Describe the features of database management systems.
- Construct database models from informal descriptions, and translate between such models.
- Implement, manipulate and query relational databases.
- Work on Oracle database, SQL \*plus commands and PL/SQL code blocks.
- Work on SQL/Server database.

## **Content of the Course**

1. Overview of Database Systems  
Purpose of a database system, data models, database languages.
2. Entity-Relationship Model  
Design issues, Entity-Relationship diagrams, mapping to tables
3. SQL , PL/SQL  
Basic structure, simple & complex select statements.
4. SQL \* Plus Commands and Functions.  
DDL, DML commands, Group Functions, Sub queries, Joins
5. Introduction to PL/SQL
6. Database Design  
Relational database design concepts, decomposition and normalization, integrity constraints.
7. Commercial Database Systems  
Oracle, SQL Server, MS-Access

## **Course Requirements**

**Participation:** Participation extends beyond mere attendance. Expect your instructor to keep track of how often you contribute to class discussion (as a whole), particularly during the panel discussion section. You may miss up to three classes without penalty - your first two absences count whether you have a good excuse or not. Each absence beyond the first three will cost you points off of your participation grade. The only exceptions to this rule are severe illness (doctor's note required) and UNYT approved trips/activities. Appropriate documentation for absences beyond the first three is necessary the class day directly before or after the one you miss. In general: this class is intensive and interactive. Missing class could seriously affect your grade! Students are reminded not to approach the instructor for copies of the previous week's materials during immediately before, during, or immediately after class. Students are expected to collect materials from their classmates or see the instructor during consultation hours.

**Exams:** Two examinations will be taken, a midterm and a final exam covering all course content during the final examination period. Test format may combine a mixture of short answer, true/false, matching, sort answer, and one or two essay questions covering *all* readings, lecture, hand-out and class discussion content.

**Final Examination: TBA**

## **General Requirements**

Late assignments and absence from tests will *not* be tolerated. *In the event of illness or emergency, contact your instructor IN ADVANCE to determine whether special arrangements are possible. The University's rules on academic dishonesty (e.g. cheating, plagiarism, submitting false information) will be strictly enforced. Please familiarize yourself with the STUDENT HONOUR CODE, or ask your instructor for clarification.*

## **Criteria for Determination of Grade, including Evaluation Methods**

Quiz	15%
Assignments(Lab Practice & Home)	15%
Project	20%
Midterm	20%
Final	30%

## **Grading Scale**

<b>Letter Grade</b>	<b>Percent (%)</b>	<b>Generally Accepted Meaning</b>
A	96-100	Outstanding work
A-	90-95	
B+	87-89	Good work, distinctly above average
B	83-86	
B-	80-82	
C+	77-79	Acceptable work
C	73-76	
C-	70-72	
D+	67-69	Work that is significantly below average
D	63-66	
D-	60-62	
F	0-59	Work that does not meet minimum standards for passing the course

## **Bibliography (Additional Readings)**

- Atre, Shaku (1988) Database: Structured Techniques for Design, Performance, and Management, 2nd Edition, John Wiley & Sons, USA
- Benynon-Davies, Paul (2004) Database Systems, Third Edition, Palgrave Macmillan, China
- Brookshear, J Glenn (2005) Computer Science an overview, Eighth Edition, Addison-Wesley, USA
- Clanchy, John; Ballard, Brigid (ed) (1997) Essay writing for students : a practical guide, 3rd Edition, Longman, South Melbourne, Australia
- Connolly, Thomas; Begg, Carolyn (1999) Database Systems A Practical Approach to Design,
- Elmasri, Ramez; Navathe, Shamkant B (2000) Fundamentals of Database Systems, 3rd Edition, Addison-Wesley, USA
- Harrington, Jan L (2002) Relational Database Design Clearly Explained, Second Edition, Morgan Kaufmann, USA
- Hawryszkiewicz, Igor T (1984) Database Analysis and Design, Science Research Associates, USA
- Hawryszkiewicz, Igor T (1990) Relational Database Design : An Introduction, Prentice Hall, Parramatta, NSW, Australia
- Kifer, Michael and Bernstein, Arthur and Lewis, Philip M (2005) Database Systems: An Application-Oriented Approach, Second Edition, Addison Wesley, USA
- Kroenke, David M (1992) Database Processing : Fundamentals Design Implementation, 4th Edition, Macmillan, USA
- Larson, James A (1995) Database Directions, Prentice Hall, USA
- Pratt, Philip J and Adamski, Joseph J (1994) Database Systems : Management and Design, Third Edition, boyd & fraser publishing company, USA
- Rob, Peter and Coronel, Carlos (1997) Database Systems : Design, Implementation, and Management, 3rd Edition, Course Technology, International Thomson Publishing, USA
- Oracle in a Nutshell, by Rick Greenwald, David C. Kreines, Orielly Press
- PL/SQL Programming, 3<sup>rd</sup> Edition, By Steven Feuerstein, Bill Pribyl, Orielly Press.

## **Technology Expectations**

- Software Required: Oracle 10g, Microsoft SQL Server.
- Students must keep copies of all assignments and projects sent by e-mail.
- Assignments are to be word-processed. Continuing and regular use of e-mail is expected.

**Date:** November 3, 2007

**Prepared by:** Narasimha Rao V