

Payap University
Bachelor of Science, Department of Computer Information Systems
Faculty of Science
2nd Semester, Academic year 2010

1. Course Title ICS322 Database Management Systems
Credits: 3 (2-2-5)
Prerequisite: ICS101, IBM103

Course Description

Querying, organizing, designing, and managing data collections, ranging from small to very large sizes, is a key aspect of the expertise of computer science professionals. The goal of this course is to introduce data-centric abstractions, models, and languages that are useful in order to design and use data collections. The course moves from initial motivations - justifying the relevance of information systems in modern society - to the essential aspects of data management, which are covered by including both theoretical and practical aspects.

2. Instructor' Name Dr.Vaide Narvaez

Status full-time part-time

3. Course Objectives

On successful completion of this subject, students should be able to

- demonstrate an understanding of fundamental database concepts, the typical database system components and functions;
- understand the role of high-level conceptual data modeling in database design and develop the ability to design and implement conceptual schemas for database applications;
- demonstrate knowledge of the relational database model and its basic characteristics and the relational algebra;
- develop the ability to use SQL to create a database and specify retrieval queries and develop skills in database application development.

4. Reading Material

4.1 Required textbook(s)

1. H. Garcia-Molina, J.D. Ullman, J. Widom. (2009) *Database Systems: The Complete Book*, 2nd ed., Prentice Hall
2. R. Elmasri, S. B. Navathe. (2004) *Fundamentals of Database Systems*, 4th ed., Prentice Hall, ISBN 0-321-20448-4

4.2 Supplementary reading materials

1. Jeffrey A. Hoffer, Mary B. Prescott and Heikki Topi. (2009) *Modern Database Management*, 9th ed., Prentice Hall, ISBN-10: 0132212110
2. Raghu Ramakrishnan and Johannes Gehrke. (2003) *Database Management Systems*, 3rd ed., McGraw-Hill, ISBN:0-07-246563-8
3. Abraham Silberschatz, Henry F. Korth and S. Sudarshan. (2002) *Database System Concepts*, 4th ed., McGraw-Hill, ISBN:0-07-228363-7

Students are encouraged to use the library catalogue and databases to locate additional readings.

5. Course Syllabus

A proposed lecture schedule for the subject is as follows:

Week	Unit/ Chapter	Content	Number of hours (No. of lecture hours /Lab)	Teaching and learning activities
1	[1.1] [2.1,2.2]	1. The World of Database Systems 2. Database Development Process	4/0	
2-3	[2.3]	3. Data Modeling using the Entity-Relationship Model	4/4	Assignment 1(3p)
4	[1.2][2.5]	4. The Relational Data Model 5. ER-to-Relational Mapping	2/2	Assignment 2(2p)
5-6	[1.3] [2.10]	6. Design Theory for Relational Databases <ul style="list-style-type: none"> Functional Dependencies and Normalization 	4/4	
7	[1.2.4] [2.6]	7. The Relational Algebra	2/2	Assignment 3(4p)
<i>Midterm Exam</i>				
8-10	[1.6,1.7] [2.8,2.9]	8. SQL: Schema, basic constraints and Queries 9. MySQL 10. Constraints and Triggers 11. Views and Indexes 12. Transactions in SQL	4/8	Assignment 4(3p) Project kickoff
11-12	[1.9] [2.25]	13. SQL in a Server Environment <ul style="list-style-type: none"> The Three-Tier Architecture Stored Procedures JDBC 	4/4	Assignment 5(3p)
13	[1.10.1] [2.23]	14. Security and User Authorization in SQL	2/2	
14	[1.11-12] [2.26]	15. Structured, semistructured, unstructured data and XML	2/2	
15		16. Course review 17. Project presentations	2/2	
<i>Final Exam</i>				

6. Evaluation

6.1 Assignments	15%
6.2 Project	15%
6.3 Midterm	30 %
6.4 Final	40 %
Total	100 %

7. Evaluation Criteria

- 7.1. Students are required to attend at least 80% of classes to be eligible to sit in the final exam.
- 7.2. Plagiarism is not tolerated! Students caught plagiarising will receive 0.

7.3. This course employs the following grading system:

Range	Letter Grade	Score (4 point scale)
80-100	A	4
75-79	B+	3.5
70-74	B	3
65-69	C+	2.5
60-64	C	2
55-59	D+	1.5
50-54	D	1
0-49	F	0