

COURSE DESCRIPTION

Dept., Number	CS 4342 Selected Elective	Course Title	Database Management (Technical Elective)
Semester hours	45 hours	Course Coordinator	Natalia Villanueva Rosales

Current Catalog Description

Introduction to data base concepts, hierarchical, network and relational data models, data description and query languages, file and index organization, and file security and integrity.

Textbook:

Elmasri, R. and S. Navathe (2010). *Fundamentals of Database Systems*. Sixth Edition. Ed. Addison-Wesley. ISBN10: 0136086209.

Course Outcomes:

Level 1: Knowledge and Comprehension.

Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. The material has been presented only at a superficial level.

Upon successful completion of the course, students will be able to:

- 1a. Describe relational databases, how they have been used in the past, and how they are used currently to implement solutions in technology.
- 1b. Define a database management system.
- 1c. Describe the problems the second generation of databases solved

Level 2: Application and Analysis.

Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details.

Upon successful completion of the course, students will be able to:

- 2a. Differentiate between first generation and second generation database systems.
- 2b. Identify different architectures where database systems are used (e.g., n-tier).
- 2c. Apply relational algebra and set theory that are supported in the relational model.
- 2d. Use a relational query language (PL/SQL) and a RDBMS.
- 2e. Administer a database.
- 2f. Normalize a database using the 1st, 2nd, and 3rd normal forms.
- 2g. Apply techniques to optimize search/retrieval (indexes, and clusters).
- 2h. Justify why one method is more useful than another, or be able to choose a method based on specified characteristics.

Level 3: Synthesis and Evaluation.

Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery.

Upon successful completion of the course, students will be able to:

- 3a. Design a relational database schema from a problem statement to conceptual/logical/physical database design.

3b. Design and code an interface that works with a normalized database, using the information read and discussed in class as well as the text.

Student Outcomes:

Not applicable

Prerequisites by Topic:

CS 2302 with a grade of "C" or better