

FSD-401: Database Systems

Description:

3 credits/126 hours

Prerequisite: None

Database Systems will provide students with a solid and practical foundation for the design, implementation, and management of database systems. This course covers three broad aspects of database systems: design, implementation, and management. Students will navigate course work that will provide them opportunities to learn the necessary skills for database design and implementation as well as tools and best practices for ongoing management of databases built using a variety of tools.

Textbook: Database Systems: Design, Implementation, and Management, 13th Ed., Coronel & Morris – ISBN: 978-1-337-62790-0

Course objectives:

Throughout the course, you will meet the following goals:

- Build a strong understanding of database systems and design models
- Develop the ability to utilize various database tools to successfully build, implement, and manage a database
- Learn advanced concepts in design and implementation that will assist with building, optimizing, and maintaining a complex database.
- Understand how databases are connected and utilized as well as understand security and optimizing measures needed for a secure and user-friendly database.

Contents:

Part 1: Database Concepts

Chapter 1: Database Systems

Chapter 2: Data Models

Part 2: Design Concepts

Chapter 3: The Relational Database Model

Chapter 4: Entity Relationship (ER) Modeling

Chapter 5: Advanced Data Modeling

Chapter 6: Normalization of Database Tables

Part 3: Advanced Design and Implementation

Chapter 7: Introduction to Structured Query Language (SQL)

Chapter 8: Advanced SQL

Chapter 9: Database Design

Part 4: Advanced Database Concepts

Chapter 10: Transaction Management and Concurrency Control

Chapter 11: Database Performance Tuning and Query Optimization

Chapter 12: Distributed Database Management Systems

Chapter 13: Business Intelligence and Data Warehouses

Chapter 14: Big Data and NoSQL
Part 5: Databases and the Internet
Chapter 15: Database Connectivity and Web Technologies
Part 6: Database Administration
Chapter 16: Database Administration and Security

Grading Scale (70% required for passing)

A = 90-100%
B = 80-89.9%
C = 70-79.9%
F = Below 70%

Grade Weighting

Chapter Quizzes..... 50%
Activities 20%
Final Exam 30%
100%