Common Course Outline
CSIT 154
Database Concepts
4 Semester Hours

The Community College of Baltimore County

Description

CSIT 154 - 4 Credits - Database Concepts provides in-depth coverage of the content of database management systems (DBMS) and their capabilities and limitations, and it covers both physical and logical data structures with an emphasis on meaningful data relationships, the role of the database administrator, and the data dictionary.

4 credits:
Prerequisite: CSIT 101 or consent of the Program Director

Overall Course Objectives

Upon completion of this course the student will be able to:

1. identify the major components of a database;
2. identify the major components of a DBMS (Database Management System);
3. distinguish between the primary database models: hierarchical, network, relational, and object-oriented;
4. design a database;
5. normalize a database;
6. create a multi-table relational database;
7. create keys;
8. create indexes;
9. implement integrity constraints;
10. code a simple query using SQL (Structured Query Language);
11. describe the role of a DBA (Database Administrator) in a business organization;
12. create a database application for a business;
13. distinguish between database management approaches: client/server, web applications, windows applications, and data warehouses;
14. utilize CASE (Computer-Aided Systems Engineering) software to design Entity Relationship (E-R) models for the logical design of a database;
15. interpret E-R models to do database queries and to build the physical database;
16. implement security measures;
17. differentiate between the various methods of handling concurrent updates; and
18. explain the various data recovery processes.

Major Topics

I. Components of a database
II. Components of a DBMS
III. Comparison of file processing and database processing
IV. Functions of a DBMS
V. Functions of the data dictionary
VI. Role of the DBA
VII. Database models
VIII. Database design
IX. Keys and indexes
X. Relationships
XI. Logical design and physical design
XII. Entity relationship diagrams
XIII. Normalization
XIV. Integrity constraints
XV. Database maintenance
XVI. Multi-user database processing
XVII. Journaling and backing-up
XVIII. Security
XIX. Database application design
XX. SQL

Course Requirements

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

- At least two projects, one of which is a comprehensive project that entails the development of a business database application.
- At least two exams
- A comprehensive final exam

Other Course Information

This course is taught in a computerized environment.

A grade of C or better in this course is needed in order to register for any CSIT 200 level courses for which this course is a prerequisite.

Date revised 10/2/15