

# Common Course Outline

## CSIT 254

### Emerging Database Design

4 Semester Hours

## Community College of Baltimore County

### Description

**CSIT 254 – Emerging Database Design** utilizes relational database design principles, techniques and emerging technologies to design and develop relational databases using contemporary database management software (DBMS). Students will identify business information requirements; transforming them into relational databases.

**4 Credits: 4 lecture hours per week**

**Prerequisite: Grade of C or better in CSIT 154 or CSIT 156, or consent of the Program Director**

### Overall Course Objectives

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

1. identify business information requirements;
2. transform business information requirements into Entity Relationships Diagrams using a Computer Aided Software Engineering (CASE) tool and Database Design Language (DBDL);
3. normalize the logical design of the database;
4. determine the attributes and their properties within each entity;
5. determine primary and foreign keys;
6. determine relationships;
7. determine cardinality within relationships;
8. implement integrity constraints;
9. build physical database by interpreting an entity relationship diagram;
10. set primary keys;
11. enforce referential integrity;
12. design and implement a front-end (graphical user interface to the database);
13. create tables, queries (views), forms and reports that meet the information requirements;
14. implement security measures and grant permissions to database;
15. backup, compact and recover a database;
16. setup and utilize a client/server environment;
17. analyze data in a data warehouse cube using Online Analytical Processing (OLAP);
18. integrate data using Extensible Markup Language (XML);
19. test database;
20. create documentation and basic user training materials; and
21. demonstrate soft skills (communication, observation, interpretation, problem solving, critical thinking, facilitation, and teamwork).

## **Major Topics**

- I. Business information requirements
- II. CASE Tools
- III. Database Management Language (DBDL)
- IV. Entity relationship diagrams
- V. Normalization
- VI. Keys
- VII. Relationships
- VIII. Cardinality
- IX. Integrity constraints
- X. Referential integrity
- XI. Tables, queries (views), forms, reports
- XII. Front-End (graphical user interface)
- XIII. Security measures and permissions
- XIV. Backup and recovery
- XV. Client server computing
- XVI. Data warehouse and online analytical processing software
- XVII. XML
- XVIII. Soft skills (communication, observation, interpretation, problem solving, critical thinking, facilitation, and teamwork)

## **Course Requirements**

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

- Development of at least three databases (at least one should be a group project)
- Comprehensive Final Exam

## **Other Course Information**

This course is a required course under the Database Option of the Information Technology degree and an Information Technology elective. This course is taught in a computerized environment.

Revised: 07/08/2019