Academic Architects
Course Data Sheet

Course Number:	DB-300
Course Name:	Applied Database Design and Development
Level of Effort:	3 Semester Hours or 5 Quarter Hours
Course Level:	Intermediate
Prerequisites:	Introduction to Information Technology Course
Adoption/Use:	Introduction to Databases, Relational Database Technology
Subject Area:	Information Technology, Database Technology
Release Version:	2020-1

Primary Course Objective: Upon completion of this course students will be able to design, model, develop, support, and work with enterprise databases.

Course Description:
This competency-based course will provide students with the "hands-on" skills to design, model, develop, support, and work with enterprise databases. Students will learn to design, model, and normalize a database schema based on requirements. Students will be able to create the Data Definition Language (DDL) code from their ER diagram design model and generate the physical database, consisting of tables, columns, indexes, relationships, keys, views, triggers, stored procedures, events, and functions. Students will learn to manipulate data using Structured Query Language (SQL) to add, edit, delete, and retrieve data in a database. The course will culminate in the design, modeling, development, and data manipulation of a real-world enterprise database.

Course Topics:
- Database Development Tools and Development Environment Setup
- Relational Database Technology
- Database Design, Modeling, and Entity-Relationship (ER) Diagrams
- Data Definition Language (DDL) and Physical Database Creation
- Inserting, Editing, Deleting, and Retrieving Data in Databases
- Database Views, Joins, Unions, and Subqueries
- Aggregating, Summarizing, and Converting Data, and Transactions and Locking
- Triggers, Events, Stored Procedures, Built-in SQL Functions, and Custom Functions

Course Learning Objectives and Competencies:
Upon completion of the course students will be able to:
1. Set up an environment for the design, modeling, development, and support of enterprise databases.
2. Design and model a relational database.
3. Create the Data Definition Language (DDL) code from the model, and generate the physical database.
4. Develop Structured Query Language (SQL) to insert, update, and delete data from a database.
5. Develop SQL to retrieve data from one or more tables in a database.
6. Create and use database views.
7. Develop SQL to aggregate and summarize data during retrieval using summary queries in a database.
8. Properly use SQL sub-queries and convert data from one data type to another.
9. Properly use built-in SQL functions.
10. Create stored procedures, triggers, events, and custom functions, and properly implement transactions and locking.

Course Deliverables:

Deliverable	Quantity
Course Curriculum Design	1
Course Syllabus	1
Course Schedule Plan (8, 10, and 16 week plans)	1
Course Learning Modules	16
Course Assessment Rubrics	7
Competencies and Objectives Map (Maps Competencies and Objectives to Learning Activities and Assessments)	1
Instructor Notes	1
Administrator Notes	1

Learning Activities:

Learning Activity	Quantity
Hands-On Workshops	2
Discussion Boards (Graded)	4
Lab Exercises (Graded)	12
Course Project Activities (Graded)	3