Module: Database Development 261

Module name:	Database Development 261
Code:	DBD261
NQF level:	6
Type:	Core – Diploma in Information Technology (all stream)
Contact Time:	42 hours
Structured time:	7 hours
Self-directed time:	21 hours
Notional hours:	70 hours
Credits:	7
Prerequisites:	DBF161

Purpose

This module covers advanced database design and development. Advanced database normalization, data integrity, concurrent updates, and data security will also be discussed and practiced. The emphasis will be on advanced understanding of the concept of database management systems required to build and maintain relational databases. Also, it covers introduction to distributed database and data warehousing concept.

Outcomes

Upon successful completion of this module, the student will be able to demonstrate:

- An advanced understanding of the core areas of database design, and an informed understanding of the key terms, concepts rules, and theories thereof.
- Detailed knowledge and informed understanding of the core areas of a database implementation, and an informed understanding of the key terms, concepts, general principles, rules, and theories thereof.
- Demonstrate an informed understanding of database objects and the ability to create database and database objects using a given database management system.
- Demonstrate the advanced understanding of database configurations and the ability to install and configure database software.
- Demonstrate the ability to create an integrated data warehouse containing historical data standardized for a company.
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- The ability to describe and utilize a range of techniques for designing data warehouses for real-world applications and be able to make informed decisions to select and evaluate, accepted and current Data warehousing technologies.

Assessment

- Continuous evaluation of theoretical work through an assignment, a formative test, and a summative test.
- Continuous evaluation of relationships between concepts, turning problem definitions into a form ready to be implemented in a well-defined database environment and actually implementing the database through a project work.
- Final assessment through a written examination.

Teaching and Learning

Learning materials

Prescribed books (EBSCO)

- 🕮 ***Database Modeling and Design : Logical Design Toby J. Teorey; Sam S. Lightstone; Tom Nadeau; H.V. Jagadish. Edition: 5th ed. Amsterdam : Morgan Kaufmann. 2011. eBook., Database: eBook Collection (EBSCOhost)***
- 🕮 ***Title: Beginning Microsoft SQL Server 2008 Programming: Author: Robert Vieira***

Additional Reference Material:

- 🕮 ***Database Systems: Design, Implementation, and Management***
- 🕮 ***Authors: Peter Rob, Carol Coronel, Keeley Crocket***
- 🕮 ***SQL QuickStart Guide : The Simplified Beginner's Guide to Managing, Analyzing, and Manipulating Data With SQL Author: Walter Shields***
- 🕮 ***Taylor, A.G. (2011).* SQL All-In-One for Dummies. *John Wiley & Sons Ltd. (ISBN:9780470929964)***

Learning activities

The teaching method is a combination of the presentation of theoretical concepts, lecturer-led practical activities, and small group work. It is a collaborative model with a practical approach, with one mandatory assignment and a project which must be completed during the module.

Notional learning hours

Contact	Distance	Other	Type of learning activities	% Learning
y	y	n	Lectures (face-to-face, limited interaction or technologically mediated)	40%
y	y	n	Tutorials: individual groups	20%
n	y	n	Syndicate groups	10%
n	y	n	Independent self-study of standard texts and references (study guides, books, journal articles)	10%
n	y	n	Independent self-study of specially prepared materials (case studies, multi-media, etc.	20%

Syllabus

- Advanced Database Models
- Normalization (Advanced
- Queries (Advanced)
- Distributed Databases
- Introduction to Data Warehousing