INTI International University & Colleges™

COURSE STRUCTURE

Name of Course: DATABASE MANAGEMENT

Course Code: ICT1104

Credit Hours: 4

Prerequisite/co-requisite: None

Summary: This course provides fundamental knowledge of database systems. This covers the concepts, applications, techniques, and development of database technology. Students will learn the practical skills to create and query databases by using Structured Query Language(SQL).

Course Learning Outcomes:

Upon completing this course, the students will be able to:

CLO1: Explain the concepts, models, techniques, applications and new developments of database technology. [C2, PLO1]

CLO2: Analyze the process of designing and developing database and its applications. [C4, PLO2]

CLO3: Construct appropriate query language to define and manipulate databases using SQL. [P3, PLO6]

Course Format:

Total Student Learning Time (SLT) (L = Lecture; T = Tutorial; P = Practical; O = Others) :					
Learning Hours				**Guided & Independent Learning (hr)**	**Total Student Learning Time (hr)**
L	T	P	O		
28		26		106	160

Teaching and Delivery Methods/ Teaching Methodology:

Lectures, Tutorials and Laboratory work, delivered in a combination of guided & independent learning

Syllabus:

Course Content Outline	CLO*
Basic Concepts - Overview of Database Concepts, Database Management Systems, Database Architecture and Users	1
Data Modeling - Overview of Data Models, Entity-Relationship (ER) Model	1,2
Relational database models - Relational Model and Key Concept (tables and characteristics; types of keys; integrity rules; relational set operators; relationships within the relational database), Database Normalization	1,2
Logical Design – Transforming Conceptual Schema to Relational Schema	1,2
Structured Query Language - Data definition language (CREATE TABLE, ALTER TABLE, DROP TABLE statements of SQL), data manipulation language (INSERT, UPDATE, DELETE statements of SQL)	1,2,3
Structured Query Language - SELECT statements: single table queries, set algebra queries, conversion functions, queries with row and aggregate functions.	1,2,3
Structured Query Language - SELECT statements: join queries, outer join queries, subqueries, correlated queries, and relational views	1,2,3
Advance Database Concepts - Introduction to Data Warehouse, Data Analytics, Online Analytical Processing (OLAP), Big Data	1,2,3

Student Evaluation:

Continuous Assessment		Percentage (%)	CLO
1	Test	20	1
2	Assignment 1	20	3
3	Assignment 2	20	3
Final Assessment		**Percentage (%)**	**CLO**
Final Exam		40	2
Total		**100%**	

Final exam format:
Duration: 2 hours
The students will be required to answer:
Section A: **Answer All**
Section B: **Answer All**

Grading Scale:
A+ (90-100), A (80–89), A- (75-79), B+ (70-74), B (65–69), B- (60–64), C+ (55–59) C (50–54), C- (45–49), D (40–44), F (0–39), RP (Resit Pass) Marks capped at 50, RF (Resit Fail) (0-49)

IMPORTANT NOTE: STUDENTS ARE REQUIRED TO "PASS" BOTH CONTINUOUS AND FINAL ASSESSMENT IN ORDER TO PASS THE SUBJECT.

Additional Information: NIL

Main Reference(s) Supporting Course:

1. Coronel C., Morris S. & Rob P. (2019), Database Systems: Design, Implementation, and Management, 13th Edition, Course Technology. ISBN: 9781337627900

Additional References:

2. J. Hoffer, R. Venkataraman, H Topi. (2019) Modern Database Management, 13th Edition, Pearson. I SBN: 9780134773650

LABORATORY WORK:

Lab	Practical Work
1-2	Introduction to Data Modelling tools
3-4	Introduction to Oracle SQL - Setting up Oracle SQL account
5-6	Introduction to Oracle SQL - Using SQL*PLUS and Oracle SQL Developer
7-10	Data Definition Language: • Describing and Working with Tables • Describing and Working with Columns and Data Types • Creating tables • Dropping columns and setting column UNUSED • Truncating tables • Creating and using Temporary Tables • Creating and using external tables • Managing Constraints
11-14	Data Manipulation Language: • Managing Database Transactions • Controlling transactions • Perform Insert, Update and Delete operations • Performing Merge statements
15-18	Structured Query Language: • using Single-Row functions to customize output (arithmetic operation with date data, manipulating numbers with the ROUND, TRUNC and MOD functions) • using Conversion Functions and Conditional Expressions (applying the NVL, NULLIF, COALESCE functions, data type conversion and nesting multiple functions) • reporting aggregated data using Group functions for single and multiple columns (Group By and Having clause)
19-21	Structured Query Language: • Displaying Data from multiple table (inner join, outer join, left join, right join, full join, self-join, union) • Understanding and using Cartesian products
22-24	Structured Query Language: • subqueries to solve queries (single and multiple row queries) • update and delete using correlated queries
25-26	Structured Query Language: • Managing views • Using data dictionary views