IS3331: DATABASE MANAGEMENT

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Database Management

Subject Code
IS - Information Systems
Course Number
3331

Academic Unit
Information Systems (IS)

College/School
College of Business (CB)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract
Database management is an exciting, challenging and growing field in information systems and business management. By the end of this course, you will learn the concepts, principles and techniques of database management. You will

also apply the database design methods to the modelling, design and implementation of databases for various business information systems. The course will introduce the structured query language (e.g. SQL) for retrieval of information in a relational database management system. The course will also build the foundations for big data and artificial intelligence applications.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Analyze and evaluate the role of data management for businesses applications and its contribution to improve organizational performance.	25		x	
2	Formulate conceptual data models based on actual business requirements.	25		x	x
3	Identify conceptual data models into relations, and normalize relations to meet user requirements.	30		x	
4	Generate database reports, queries and applications to improve the efficiency of businesses.	20		x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	LTA1: Lecture	Students will learn the concepts related to database modelling, normalization, and languages for database query.	1, 2, 3, 4	Seminar: 3 Hours/Week
2	LTA2: Demonstrations	Students will experience methods and techniques of database modelling and implementation.	1, 2, 3, 4	Seminar: 3 Hours/Week

3	LTA3: Practical/ Workshop	Students will acquire hands-on skills on developing conceptual and physical database models and their implementation.	2, 3, 4	Seminar: 3 Hours/Week

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	AT1: Quizzes Two quizzes.	1, 2, 3, 4	10	
2	AT2: Group Project A group project, which includes a project report and presentation, will be allocated to let students apply the modelling concepts techniques learnt in class to solve practical business problems.	1, 2, 3, 4	30	

Continuous Assessment (%)

40

Examination (%)

60

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

AT1:Quizzes

Criterion

Ability to accurately describe all key concepts, and effectively compare and discriminate among the key concepts.

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task
AT1:Quizzes

Criterion
Ability to accurately describe all key concepts; and demonstrate the ability to creatively develop an effective conceptual data model to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT1:Quizzes

Criterion
Ability to accurately describe all key concepts; and demonstrate the ability to creatively develop an effective physical data model to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT1:Quizzes

Criterion
Capability to demonstrate a cogent ability to integrate all of the concepts, skills and techniques learnt to develop an effective database application to meet all stated business requirements.

Excellent (A+, A, A-)

High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT2:Group Project

Criterion
Ability to accurately describe all key concepts, and effectively compare and discriminate among the key concepts.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT2:Group Project

Criterion
Ability to accurately describe all key concepts; and demonstrate the ability to creatively develop an effective conceptual data model to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)

Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT2:Group Project

Criterion
Ability to accurately describe all key concepts; and demonstrate the ability to creatively develop an effective physical data model to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT2:Group Project

Criterion
Capability to demonstrate a cogent ability to integrate all of the concepts, skills and techniques learnt to develop an effective database application to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task

AT3: Examination

Criterion
Ability to accurately describe all key concepts, and effectively compare and discriminate among the key concepts.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT3: Examination

Criterion
Ability to accurately describe all key concepts; and demonstrate the ability to creatively develop an effective conceptual data model to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT3: Examination

Criterion
Ability to accurately describe all key concepts; and demonstrate the ability to creatively develop an effective physical data model to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
AT3: Examination

Criterion
Capability to demonstrate a cogent ability to integrate all of the concepts, skills and techniques learnt to develop an effective database application to meet all stated business requirements.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Part III Other Information

Keyword Syllabus
Concepts and methods of database management; Architecture and components of database systems; Database development and design; Entity-Relationship diagrams; Conceptual, logical and physical database design; Normalization; Relational database model; Data and text mining; Database definitions and manipulation languages; Structured Query Language.

Reading List

Compulsory Readings

	Title
1	Jeffrey A. Hoffer, Ramesh Venkataraman, Heikki Topi. Modern Database Management, 13th Edition by Pearson. (Aug 26, 2019).

Additional Readings

	Title
1	Silberschatz, A., Database System Concepts, 7th edition, McGraw-Hill, Inc.,2019.
2	Carols Coronel and Steven Morris, Database Systems: Design, Implementation and Management, Course Technology, 2018.