THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY | HKUST Summer School

COMP 3311 – Database Management Systems

School:	**School of Engineering**
Subject Area:	**Computer Science and Engineering**
Course Credit:	**3**
Instructor:	**LOCHOVSKY Frederick Horst**
Pre-requisite/co-requisite:	**Details Here**

Notes:

- The syllabi provided here is for reference only and may be subject to changes and adjustments as determined by the course instructors.

The Hong Kong University of Science and Technology

UG Course Syllabus Template

[Course Title] Database Management Systems

[Course Code] COMP3311

[No. of Credits] 3-credit

[Any pre-/co-requisites] COMP 2011 OR COMP 2012 OR COMP 2012H

Name: [Instructor(s) Name] Prof Frederick H. LOCHOVSKY

Email: [Your Email Address] fred@cse.ust.hk

Office Hours: [Specify Office Hours and Location] Room 3558

Course Description

A database management system (DBMS) is primarily concerned with efficiently and effectively managing data. A database management system (DBMS) is primarily concerned with efficiently and effectively managing very large amounts of data. This course introduces the topic through lectures, which present database technology theories and concepts, and through tutorials and labs which provide practise and experience in designing, implementing and querying databases using commercial database management systems. Topics covered include analysis and representation of data requirements (entity-relationship (E-R) model, relational model, JavaScript Object Notation (JSON)); querying data using database query languages (relational and non-relational); storing, managing and processing data; safeguarding data in a multi-user environment. Experience in designing, implementing and querying databases using both relational and non-relational database technologies will be provided.

OBJECTIVES

The course provides both a theoretical and a practical foundation for understanding the capabilities and use of database management systems for managing data. The theoretical part covers the major concepts and techniques used by database management systems to manage data. The practical part provides hands-on experience in using commercial database management systems to design, implement and query databases.

TOPICS	CHAPTERS (6th ed.)	(7th ed.)	LECTURES (estimated)
Database Management Systems	1	1	1
Database Design	7	2	2
Relational Database Design	2	2, 6, 7	3
Relational Algebra (RA)	6	2	1
Structured Query Language (SQL)	3, 4, 5	3, 4, 5	4
Storage and File Structure	10	12, 13	1
NoSQL DBMSs		10	1
MongoDB DBMS			3
Indexing	11	14	2
Query Processing	12, 13	15, 16	3
Transaction Management	14, 15, 16	17, 18, 19	3

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve.

Assessments:

[List specific assessed tasks, exams, quizzes, their weightage, and due dates; perhaps, add a summary table as below, to precede the details for each assessment.]

	Requirement	*Remarks*	*Value*
1.	Lecture, Tutorial and Lab Exercises		10%
2.	Assignments		25%
	1. Entity-Relationship Schema Design	10% of course grade	
	2. Relational Database Creation and SQL Queries	10% of course grade	
	3. MongoDB Database Creation and MQL Queries	5% of course grade	
3.	Midterm Test		25%
4.	Final Exam		40%

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST's Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Academic Integrity | HKUST – Academic Registry for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

TEXTBOOK

Database System Concepts, 7th Edition, A. Silberschatz, H.F. Korth and S. Sudarshan, McGraw-Hill, 2020.