Prepared: Approved:

Course Code: Title	CSD210: DATABASE MODELLING
Program Number: Name	2090: COMPUTER PROGRAMMER
Department:	COMPUTER STUDIES
Semester/Term:	17F
Course Description:	This course will emphasize the importance of database design prior to implementation. The student will learn to capture and model the user`s data environment through the analysis and design of relational databases using the Entity-Relationship Model and normalization techniques. Database models will be physically implemented using a relational DBMS and SQL (Structured Query Language). To understand the database development process, the following concepts will be discussed: conceptual model, logical model, entities, attributes, relationships, cardinalities, primary and foreign keys, normalization, and data integrity.
Total Credits:	4
Hours/Week:	4
Total Hours:	0
Prerequisites:	CSD102
This course is a pre-requisite for:	CSD220
Course Evaluation:	Passing Grade: 50%, D
Other Course Evaluation & Assessment Requirements:	Evaluation Methods Weight Tests 60% Assignments/Labs 40% 100% Grade Definition Grade Point Equivalent A+ 90 100% 4.00 A 80 89% B 70 - 79% 3.00 C 60 - 69% 2.00 D 50 59% 1.00

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	F (Fail) 49% and below 0.00 CR (Credit) Credit for diploma requirements has been awarded. S Satisfactory achievement in field /clinical placement or non-graded subject area. U Unsatisfactory achievement in field/clinical placement or non-graded subject area. X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course. NR Grade not reported to Registrar`s office. W Student has withdrawn from the course without academic penalty. 1. In order to pass this course the student must obtain an overall test/quiz average of 50% or better, as well as, an overall assignment average of 50% or better. A student who is not present to write a particular test/quiz, and does not notify the professor beforehand of their intended absence, may be subject to a zero grade on that test/quiz. 2. There will be no supplemental or make-up quizzes/tests in this course. 3. Assignments must be submitted by the due date according to the specifications of the professor. Late assignments will normally be given a mark of zero. Late assignments will only be marked at the discretion of the professor in cases where there were extenuating circumstances, and, in such cases, a late penalty of 10% per day will be assessed. 4. Any assignment/projects submissions, deemed to be copied, will result in a zero grade being assigned to all students involved in a particular incident. 5. It is the responsibility of the student to ask the professor to clarify any assignment requirements. 6. The professor reserves the right to modify the assessment process In order to meet any changing needs of the class.
Books and Required Resources:	Database Concepts by Kroenke Publisher: Pearson Education Edition: 7th ISBN: ISBN-13 978-0-13-354462-6 E-Text: ISBN-13 978-0-13-354486-2 Free download: http://www.mysql.com/downloads/workbench/ by Software: Workbench 6.3.3 (GUI Tool) Publisher: MySQL Community Edition 5.6.24 (DBMS)

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Course Outcomes and Learning Objectives:

Course Outcome 1.

Understand the problems with spreadsheet/file processing systems and how database oriented systems provide solutions to those problems.
(chapter 1- Kroenke and Auer)

This learning outcome will comprise approximately 5% of the course.

Learning Objectives 1.

- define/describe the following terms:

i) database iii) data redundancy
ii) database management system iv) data integrity

- compare database processing with spreadsheet/file processing
- understand the disadvantages of spreadsheet/file processing
- understand the advantages and disadvantages of database processing
- identify and describe the functions of a database management system
- identify the role of various components of a database system

Course Outcome 2.

Understand the Relational Database Model and apply the Entity-Relationship Model for modeling business data requirements. (chapter 4 – Kroenke and Auer)

This learning outcome will comprise approximately 55% of the course.

Learning Objectives 2.

- relate this course to systems analysis and design
- define and apply the concepts of the following terms:

i) Entity-Relationship Model vii) internal/physical model
ii) entity viii) weak entity
iii) attribute ix) category types
iv) relationship x) supertypes/subtypes

v) external/user view(subschema) xi) cardinality
vi) conceptual/logical model(schema) xii) domain
xiii) recursive

- understand the importance for data modelling and design tools and techniques
- identify and name entities in a user's environment
- differentiate between an entity type and entity occurrence
- allocate attributes to their respective entities
- differentiate entity occurrences by assigning primary/unique identifiers to those occurrences
- understand how entities and relationships are represented
- understand and apply connectivity`s and cardinalities
- understand and apply the following types of binary relationships

i) one-to-one ii) one-to-many iii) many-to-many

- understand how user views are related and combined to form an overall database design
- use Microsoft Visio to create E-R diagrams (data models)

Course Outcome 3.

Understand anomalies and the need for normalization through application of the Relational Model. (chapter 2 – Kroenke and Auer)

This learning outcome will comprise approximately 20% of the course.

Learning Objectives 3.

- define and apply the concepts of the following terms:

i) relation/row/column v)functional dependency
ii) attribute vi)determinant
iii)normal forms vii)primary key/foreign key/candidate key
iv)modification anomalies viii)referential integrity

- understand anomalies and the need for normalization
- understand how to assign primary keys to tables
- determine the functional dependencies among attributes
- understand the goal of domain key normal form
- compose relations applying the concepts of normalization and functional dependencies

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Course Outcome 4.

Transform E-R data models into a physical relational design and perform data manipulation. (chapters 3 and 5, Appendix B – Kroenke and Auer)

This learning outcome will comprise approximately 20% of the course.

Learning Objectives 4.

- create tables from the entities defined in the E-R Model and the list of attributes assigned to those entities
- define primary and secondary keys for each table
- implement one-to-one, one-to-many, and many-to-many relationships, and, explain how these relationships facilitate the retrieval of information
- enforce referential integrity constraints
- query a database retrieving row and column data (SELECT…)
- query a database using conditions to restrict the data retrieved (SELECT….WHERE…)
- rename column headings in the retrieved data
- use aggregate functions such as AVG, COUNT, MIN, MAX, and SUM
- organize data into groups (GROUP BY)
- set conditions on groups (HAVING)
- create queries involving two or more tables using both “joins” and “subqueries”
- insert data into a table (INSERT)
- update data in a table (UPDATE)
- delete data from a table (DELETE)

Date:	Friday, September 1, 2017
	Please refer to the course outline addendum on the Learning Management System for further information.