



COURSE OUTLINE: CSD210 - DATABASE MODELLING

Prepared: Rodney Martin

Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	CSD210: DATABASE MODELLING
Program Number: Name	2090: COMPUTER PROGRAMMER 2091: COMPUTER - PROG/ANAL
Department:	COMPUTER STUDIES
Semesters/Terms:	19F
Course Description:	This course will introduce students to database design design and implementation. Students will learn to analyze and model an end-user's data environment using Entity-Relationship Diagrams 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: data integrity, entities, attributes, relationships, cardinalities, primary and foreign keys, normalization, conceptual model, and logical model.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Prerequisites:	CSD102
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	CSD220
Vocational Learning Outcomes (VLO's) addressed in this course: Please refer to program web page for a complete listing of program outcomes where applicable.	2090 - COMPUTER PROGRAMMER VLO 1 Use documented solutions to troubleshoot problems associated with software installation and customization. VLO 2 Develop, test, document, deploy, and maintain secure program code based on specifications. VLO 3 Perform routine maintenance on a database. VLO 5 Gather and document required information and assist in an analysis of a business. VLO 6 Use relevant methodologies, policies, and standards to develop secure program code. VLO 7 Maintain effective working relationships with clients. VLO 8 Conform to workplace expectations found in information technology (IT) environments.
Essential Employability Skills (EES) addressed in this course:	EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 6 Locate, select, organize, and document information using appropriate technology and information systems.



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	EES 7 Analyze, evaluate, and apply relevant information from a variety of sources.
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 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: MySQL Workbench



Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
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.	1.1 define/describe the following terms: i) database iii) data redundancy ii) database management system iv) data integrity 1.2 compare database processing with spreadsheet/file processing 1.3 understand the disadvantages of spreadsheet/file processing 1.4 understand the advantages and disadvantages of database processing 1.5 identify and describe the functions of a database management system 1.6 identify the role of various components of a database system
Course Outcome 2	Learning Objectives for Course Outcome 2
2. 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.	2.1 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 2.2 understand anomalies and the need for normalization 2.3 understand how to assign primary keys to tables 2.4 determine the functional dependencies among attributes 2.5 understand the goal of domain key normal form 2.6 compose relations applying the concepts of normalization and functional dependencies
Course Outcome 3	Learning Objectives for Course Outcome 3
3. 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.	3.1 relate this course to systems analysis and design 3.2 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 3.3 understand the importance for data modelling and design tools and techniques 3.4 identify and name entities in a user's environment 3.5 differentiate between an entity type and entity occurrence 3.6 allocate attributes to their respective entities 3.7 differentiate entity occurrences by assigning primary/unique identifiers to those occurrences 3.8 understand how entities and relationships are represented



		3.9 understand and apply connectivity's and cardinalities 3.10 understand and apply the following types of binary relationships i) one-to-one ii) one-to-many iii) many-to-many 3.11 understand how user views are related and combined to form an overall database design 3.12 use Microsoft Visio to create E-R diagrams (data models)						
	Course Outcome 4	Learning Objectives for Course Outcome 4						
	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.	4.1 create tables from the entities defined in the E-R Model and the list of attributes assigned to those entities 4.2 define primary and secondary keys for each table 4.3 implement one-to-one, one-to-many, and many-to-many relationships, and, explain how these relationships facilitate the retrieval of information 4.4 enforce referential integrity constraints 4.5 query a database retrieving row and column data 4.6 query a database using conditions to restrict the data retrieved 4.7 rename column headings in the retrieved data 4.8 use aggregate functions such as AVG, COUNT, MIN, MAX, and SUM 4.9 organize data into groups (GROUP BY) 4.10 set conditions on groups (HAVING) 4.11 create queries involving two or more tables using both joins and subqueries 4.12 insert data into a table (INSERT) 4.13 update data in a table (UPDATE) 4.14 delete data from a table (DELETE)						
Evaluation Process and Grading System:	<table><tr><td>Evaluation Type</td><td>Evaluation Weight</td></tr><tr><td>Assignments and Labs</td><td>40%</td></tr><tr><td>Tests</td><td>60%</td></tr></table>		Evaluation Type	Evaluation Weight	Assignments and Labs	40%	Tests	60%
Evaluation Type	Evaluation Weight							
Assignments and Labs	40%							
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Date:	August 27, 2019							
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.							