



## COURSE OUTLINE: CSD220 - DATABASE PROGRAM/SQL

Prepared: Rodney Martin

Approved: Corey Meunier, Chair, Technology and Skilled Trades

<b>Course Code: Title</b>	CSD220: DATABASE PROGRAMMING USING SQL
<b>Program Number: Name</b>	2091: COMPUTER - PROG/ANAL 2095: COMPUTER PROGRAMMING
<b>Department:</b>	COMPUTER STUDIES
<b>Semesters/Terms:</b>	22W
<b>Course Description:</b>	This course is a continuation of CSD210, Database Modelling, where more advanced design and implementation of systems will be completed. A major focus of the course is on the physical implementation and manipulation of databases. More advanced SQL (Structured Query Language) will be used for processing and managing relational databases. The DBMS platform that will be used is MySQL. Database design/modeling will be revisited to ensure the student has grasped the major concepts taught in the previous course. The course will also extend the concepts of database management to include such topics as managing multi-user databases and data warehouse design.
<b>Total Credits:</b>	4
<b>Hours/Week:</b>	4
<b>Total Hours:</b>	60
<b>Prerequisites:</b>	CSD210
<b>Corequisites:</b>	There are no co-requisites for this course.
<b>This course is a pre-requisite for:</b>	CSD320
<b>Vocational Learning Outcomes (VLO's) addressed in this course:</b>	<b>2095 - COMPUTER PROGRAMMING</b> VLO 6 Select and apply strategies for personal and professional development to enhance work performance. VLO 9 Support the analysis and definition of software system specifications based on functional and non-functional requirements. VLO 11 Apply one or more programming paradigms such as, object-oriented, structured or functional programming, and design principles, as well as documented requirements, to the software development process. VLO 12 Model, design, implement, and maintain basic data storage solutions.
<b>Essential Employability Skills (EES) addressed in this course:</b>	EES 6 Locate, select, organize, and document information using appropriate technology and information systems. EES 9 Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
<b>Course Evaluation:</b>	Passing Grade: 50%, D

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.



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A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.

**Other Course Evaluation & Assessment Requirements:**

**EVALUATION PROCESS/GRADING SYSTEM:**

Evaluation Methods Weight

Tests 60%  
Assignments 40%  
100%

The following semester grades will be assigned to students in postsecondary courses:

Grade  
Definition Grade Point Equivalent  
A+ 90 - 100% 4.00  
A 80 - 89% 4.00  
B 70 - 79% 3.00  
C 60 - 69% 2.00  
D 50 - 59% 1.00  
F(Fail) below 50% 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.

**Books and Required Resources:**

MySQL Basics by Rodney Martin  
Publisher: Sault College  
<https://saultcollege-mysql-syntax-basics.netlify.app/>

MySQL Notes for Professionals  
Publisher: Goalkicker.com  
<https://downloads.goalkicker.com/MySQLBook/>

**Course Outcomes and Learning Objectives:**

<b>Course Outcome 1</b>	<b>Learning Objectives for Course Outcome 1</b>
Review the concepts of database design/modeling taught in the previous course.	1.1 Identify entities and allocate attributes to them 1.2 Assign primary/unique identifiers to entities 1.3 Represent entities and relationships using Entity-Relationship diagrams 1.4 Create a database design/model and implement its physical representation
<b>Course Outcome 2</b>	<b>Learning Objectives for Course Outcome 2</b>
Discuss and apply the more advanced concepts related to SQL (Structured Query Language) using MySQL	2.1 Apply the concepts of grouping, joins and sub-queries 2.2 Apply the concepts of data definition and manipulation 2.3 Apply the concepts of data control using database users, roles, views, and triggers 2.4 Create and use stored procedures

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		2.5 Perform backup and restore procedures on a database
	<b>Course Outcome 3</b>	<b>Learning Objectives for Course Outcome 3</b>
	Describe the role of data/database management with respect to multi-user database processing and learn techniques for controlling the consequences of concurrent data access	3.1 Identify problems caused by concurrent processing 3.2 Explain the need for and use transactions 3.3 Explain methods to prevent loss of updates and the deadlocking
	<b>Course Outcome 4</b>	<b>Learning Objectives for Course Outcome 4</b>
	Understand how databases interact with applications	4.1 Distinguish between database users and application users 4.2 Explain the importance of software layers to isolate database code from business logic 4.3 Describe different database system architectures and their comparative advantages and disadvantages 4.3 Use a database connector library in an application to retrieve information from a database 4.4 Describe and mitigate the problems associated with security in database applications
	<b>Course Outcome 5</b>	<b>Learning Objectives for Course Outcome 5</b>
	Describe NoSQL databases and when they are appropriate	5.1 Describe JSON and how it is stored in both a SQL and NoSQL database 5.2 Describe the different types of NoSQL databases 5.3 Discuss the advantages and disadvantages of NoSQL vs relational databases
	<b>Course Outcome 6</b>	<b>Learning Objectives for Course Outcome 6</b>
	Explain what a data warehouse is and how to perform ETL	6.1 Describe what a data warehouse is and how enterprises use them 6.2 Describe the typical schemas used in data warehouses 6.3 Describe the Extract, Transform, and Load process 6.3 Explain the difference between a data warehouse, data mart, and data lake

**Evaluation Process and Grading System:**

Evaluation Type	Evaluation Weight
Assignments	40%
Tests	60%

**Date:** July 30, 2021

**Addendum:** Please refer to the course outline addendum on the Learning Management System for further information.

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