COURSE OUTLINE: MAP104 - DATABASE DESIGN

Prepared: Dr. Michael Biocchi
Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	MAP104: DATABASE DESIGN
Program Number: Name	2191: MOBILE APPS DESIGN
Department:	COMPUTER STUDIES
Semesters/Terms:	20F
Course Description:	In this course, students will learn database design in order to manage information in an enterprise. Learners will use the SQL language to define data structures and modify data using a relational database management system (RDBMS). Lessons within this course will include: querying, inserting, updating, and deleting data from existing databases, implementing database from a design, and finally, designing a database to meet various business requirements. MySQL, MySQL Workbench, SQL DML, SQL DDL, and database normalization rules are the main topics. This course is a first course in database fundamentals that prepares the student for a role supporting information management within an enterprise.
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: Please refer to program web page for a complete listing of program outcomes where applicable.	**2191 - MOBILE APPS DESIGN** VLO 11 Design, develop and build a database to application specifications.
Essential Employability Skills (EES) addressed in this course:	EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	The student must pass both the lab and test portions of the course. Attendance: Sault College is committed to student success. There is a direct correlation between academic

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 2020-2021 academic year.

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performance and class attendance, therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.

Absences due to medical or other unavoidable circumstances should be discussed with the instructor. Students are required to be in class on time and attendance will be taken within the first five minutes of class.

Absentee reports will be discussed with each student during regular meetings with Faculty Advisors.

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

Books and Required Resources:	Database Design by Adrienne Watt, Publisher: BCcampus Edition: 2

Course Outcomes and Learning Objectives:	**Course Outcome 1**	**Learning Objectives for Course Outcome 1**
	1. Discuss the basics of databases and introduce students to an SQL query browser. Prepare the student to allow them to install and configure SQL software	1.1 Demonstrate an understanding of a database 1.2 Demonstrate the ability to set up a mysql environment 1.3 Differentiate between different SQL browsers and command line
	Course Outcome 2	**Learning Objectives for Course Outcome 2**
	2. Discuss the basics of SQL and demonstrate how to interact with tables and data	2.1 Demonstrate the understanding of creating new database records 2.2 Demonstrate the understanding of updating database records 2.3 Demonstrate the understanding of deleting database records 2.4 Demonstrate the understanding of reading database records 2.5 Perform basic CRUD commands to manipulate a database
	Course Outcome 3	**Learning Objectives for Course Outcome 3**
	3. Understand what a	3.1 Understand the different types of normalization

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relational database is and differentiate it from a non-relational database	3.2 Construct a relational database in different normal forms 3.3 Identify when a relational database is appropriate for use 3.4 Understand keys and how they are used in relational databases
Course Outcome 4	**Learning Objectives for Course Outcome 4**
4. Discuss data and understand the various types of data	4.1 Understand what data is and how it is captured 4.2 Learn about metadata, big data, file systems, and how the database plays a role in this 4.3 Learn about the history of databases and when it is appropriate to use them 4.4 Demonstrate an understanding of when to use various data types 4.5 Understand the difference between data types in terms of size, memory, and types of information that can be stored
Course Outcome 5	**Learning Objectives for Course Outcome 5**
5. Illustrate a database through the E-R Model and understand the importance of business requirements	5.1 Understand the different types of relationships 5.2 Understand data normalization and when to use it 5.3 Demonstrate the ability to capture business requirements 5.4 Illustrate and model a database based on business requirements 5.5 Understand E-R models
Course Outcome 6	**Learning Objectives for Course Outcome 6**
6. Discuss advanced SQL functions and demonstrate the ability to create complex databases	6.1 Understand and demonstrate joins and unions 6.2 Understand and demonstrate mathematical functions in a query 6.3 Understand grouping data and the importance of it
Course Outcome 7	**Learning Objectives for Course Outcome 7**
7. Analyze how databases are used in an enterprise and create reports	7.1 Demonstrate how to create views 7.2 Understand how to write a query to generate reports 7.3 Understand how variables are used in a query browser 7.4 Describe what an enterprise application is
Course Outcome 8	**Learning Objectives for Course Outcome 8**
8. Discuss cloud based databases and understand how they differ from on premise	8.1 Understand limiting query results to keep data small, relevant, and cost efficient 8.2 Demonstrate writing slim queries to only capture the data needed 8.3 Understand how keeping data offsite is different than onsite 8.4 Understand the advantages and disadvantages of cloud based databases
Course Outcome 9	**Learning Objectives for Course Outcome 9**
9. Explain what a data warehouse is and how to perform ETL	9.1 Describe what a data warehouse is and how enterprises use them 9.2 Understand the Extract, Transform, and Load process 9.3 Understand how flat files and non-relational databases play a role in databases
Course Outcome 10	**Learning Objectives for Course Outcome 10**

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	10. Describe big data and understand the size of data being captured	10.1 Understand JSON and how it is stored in both a SQL and NoSQL database 10.2 Understand the importance of a NoSQL database 10.3 Implement a NoSQL database and perform queries on it

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Labs	25%
Quizzes	25%
Tests	50%

Date: September 11, 2020

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

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