School of Computing & Academic Studies
Program: Part-time Studies

Relational Database Design & SQL

Start Date:	**Fri 14 Sep 2018**		**End Date:**	**Fri 30 Nov 2018**	

Total Hours:	60 **Total Weeks:**	12	**Term:**	**3**	**Course Credits:** 5
Hours/Week:	5 **In-class:**	3 **On-line:** 2	**Shop:**	**Seminar:**	**Other:**

Pre-requisites for Comp 1630:		**Comp 1630 is a Pre-requisite for:**	
Course No.	**Course Name**	**Course No.**	**Course Name**
Comp 1002	Computer Concepts & MS Windows	Comp 2831	Systems Analysis & Design

■ Course Description

This hands-on course provides the foundation for all other advanced database courses. RDBMS - relational database management systems from the basic design concepts through to SQL are covered. Students are introduced to industry standard data modeling processes and the tools that the IT profession uses. Topics include functional dependencies, normalization, database design methodologies, entity relationship modeling and the use of UML as a diagramming notation. Advanced topics include introduction to SQL, DDL - data definition language and DML - data manipulation language, views, security and transaction management. In addition the course introduces the student to triggers and stored procedures. Students will design and implement a database application using a current RDBMS.

** PLEASE NOTE: Microsoft ACCESS, VISIO, and SQL SERVER are software tools used in this course.

■ Evaluation

DESCRIPTION	MARKS	PERCENT
Exercises and Discussions	100	20%
Term Project	100	20%
Midterm Exam	100	30%
Final Exam	100	30%
TOTAL		100%

NOTE:

Participation in on-line discussions is a requirement of the course. Assignments must be submitted on time and in a professional manner. To pass the course, a minimum course grade of **60%** in addition to an average mark of **50%** on the two examinations must be achieved.

■ Course Learning Outcomes/Competencies

Upon successful completion, the student will be able to:

- Describe the database approach, its environment, and database application life cycle.
- Explain the functions and characteristics of the relational model.
- Apply UML techniques of database design.
- Apply database design process to implement a database application.
- Describe security issues and data protection techniques in a database environment.
- Explain the use of databases in data warehousing.
- Use SQL to implement and query a relational database.
- Create stored procedures and triggers
- Use relational algebra operations to solve relational queries.

■ Verification

I verify that the content of this course outline is current.

I verify that this course outline has been reviewed.

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

■ Instructor

Frank Wegener   E-mail Address: fwegener@my.bcit.ca

■ Learning Resources

Recommended:

DATABASE SYSTEMS
Design, Implementation, and Management (11th or 12th Edition)
by Peter Rob and Carlos Coronel
published by Thompson Publishing
        ISBN 978-1-28519-614-5 (11e)
        ISBN 978-1-30562-748-2 (12e)
        ISBN 978-1-28580-073-8 (digital edition)

■ Assignment Details

See the attached schedule.

■ Information for Students

The following statements are in accordance with the BCIT Policies 5101, 5102, 5103, and 5104, and their accompanying procedures. To review these policies and procedures, please refer to: www.bcit.ca/about/administration/policies.shtml

Attendance/Illness:
In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with his/her instructor or Program Head or Chief Instructor, indicating the reason for the absence. Prolonged illness of three or more consecutive days must have a BCIT medical certificate sent to the department. Excessive absence may result in failure or immediate withdrawal from the course or program. Please see Policy 5101 — Student Regulations, and accompanying procedures: http://www.bcit.ca/files/pdf/policies/5101.pdf

Academic Misconduct:
Violations of academic integrity, including dishonesty in assignments, examinations, or other academic performances are prohibited and will be handled in accordance with Policy 5104 — Academic Integrity and Appeals, and accompanying procedures: http://www.bcit.ca/files/pdf/policies/5104.pdf

Attempts:
Students must successfully complete a course within a maximum of three attempts at the course. Students with two attempts in a single course will be allowed to repeat the course only upon special written permission from the Associate Dean. Students who have not successfully completed a course within three attempts will not be eligible to graduate from their respective program.

Accommodation:
Any student who may require accommodation from BCIT because of a physical or mental disability should refer to BCIT's Policy on Accommodation for Students with Disabilities (Policy #4501), and contact BCIT's Disability Resource Centre (SW1-2300, 604-451-6963) at the earliest possible time. Requests for accommodation must be made to the Disability Resource Centre, and should not be made to a course instructor or Program area.

Any student who needs special assistance in the event of a medical emergency or building evacuation (either because of a disability or for any other reason) should also promptly inform their course instructor(s) and the Disability Resource Centre of their personal circumstances.

■ Schedule

Lesson	Topic	Ref	Assignment	Discussion
1	Introduction to Database Systems	Chapter 1	Exercise 1 Review Questions 1	Databases in Daily Life
2	Relational Database Model	Chapter 2 Chapter 3	Exercise 2 Review Questions 2	DBMS Characteristics
3	Entity Relationship Modeling	Chapter 4	Exercise 3 Review Questions 3	DBMS Distributed vs. Centralized
4	Normalization Advanced Data Modeling	Chapter 5 Chapter 6	Exercise 4 Review Questions 4	DBMS Design
5	**Midterm Exam**	**Chapters 1-6**	**3 Hours Written Closed Book**	
6	MS SQL Server Management Studio Suite	Chapter 7	Exercise 6 Review Questions 6	ODBC

7	SQL – Part 1
	    SELECT ... FROM
	    ORDER BY
		Chapter 7	Exercise 7
			Review Questions 7
			Project – Part B (Due Lesson 10)
				Operational vs. Decision Support Data

8	SQL – Part 2
	    GROUP BY ... HAVING
	    JOIN & UNION
		Chapter 7	Exercise 8
			Review Questions 8
			Project – Part B (Due Lesson 10)
				Quality Assurance

9	SQL – Part 3
	    CASE
	    Views and Sub-queries
		Chapter 8	Exercise 9
			Review Questions 9
			Project – Part C (Due Lesson 11)
				DBMS Selection

10	SQL – Part 4
	    Stored Procedures
	    Triggers
		Chapter 8	Exercise 10
			Review Questions 10
			Project – Part D (Due Lesson 12)
				RAID

11	Performance Tuning Data Warehousing Database Security	Chapter 11 Chapter 13 Chapter 15	Term Project Lab Review Questions 11	DBMS Security
12	**Final Exam**	**SQL**	**3 Hours Online Open Book**	