RYERSON UNIVERSITY

**Ted Rogers School of Information Technology Management
And G. Raymond Chang School of Continuing Education**

(C)ITM 500 – Data and Information Management

COURSE OUTLINE FOR 2019-2020

1.0 PREREQUISITE

The prerequisite for this course is ITM 207. Students who do not have the prerequisite will be dropped from the course.

2.0 INSTRUCTOR INFORMATION

- Name:

- Office Phone Number:

- E-mail address:

- Faculty/course web site(s): https://my.ryerson.ca

- Office Location & Consultation hours:

  - Your instructor is available for personal consultation during scheduled consultation hours which are posted on their office door or on the course shell in D2L Brightspace. However, you are advised to make an appointment by e-mail or by telephone before coming to ensure that the professor is not unavoidably absent.

- E-mail Usage & Limits:

In accordance with the policy on Ryerson Student E-mail accounts (Policy 157), *Ryerson requires that any official or formal electronic communications from students be sent from their official Ryerson E-mail account.* As such emails from other addresses may not be responded to. Students are expected to monitor and retrieve messages and information issued to them by the University via Ryerson online systems on a frequent and consistent basis.

3.0 CALENDAR COURSE DESCRIPTION

This course provides the students with an introduction to the core concepts in data and information management. It is centered around conceptual data modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques. The course will include coverage of basic database administration tasks and key concepts of data quality and data security. Building on the transactional database

understanding, the course provides an introduction to data and information management technologies that provide decision support capabilities under the broad business intelligence umbrella.

4.0 COURSE OBJECTIVES AND LEARNING OUTCOMES

To acquire knowledge of and competency in the major techniques used in the analysis and design of the relational databases for business applications. Specifically to acquire competency in developing SQL views and queries to extract relevant data to meet business information requirements and in building ERD models that support relational database logical schema design

Upon completion of the course, students will be able to:

1. Understand and articulate the Relational Database concept and its role in business
2. Analyze data requirements for the database
3. Construct an Entity Relationship Diagram
4. Transform the ERD to a Logical Data Model
5. Understand and apply the rules of Normalisation
6. Develop query commands in SQL at an advanced level
7. Design and implement Views using SQL
8. Translate the Logical Data Model to a basic Physical Schema
9. Be competent in the use of relevant industry representative software

5.0 TEXTS & OTHER READING MATERIALS

Title: Database Systems: Design, Implementation, and Management, 13th Edition
Author: Carlos Coronel & Steven Morris
Publisher: Course Technology
ISBN: 978-1337627900

6.0 TEACHING METHODS

This course will incorporate the following teaching/learning methods lecture, laboratory assignments, problem-based learning and group projects. Please note that beside the main textbook, the class lecture notes and assigned labs are the major delivery of the content of ITM 500.

7.0 EVALUATION, ASSESSMENT AND FEEDBACK

The grade for this course is composed of the mark received for each of the following components:

Evaluation Component	Percentage of the Final Grade	Week Due	Week Evaluation Returned

Weekly Labs	10%	2-11	3-12
Assignment 1	10%	7	9
Assignment 2	10%	11	Exam Week
Midterm Exam	20%	5	7
Final Exam	50%		
Total	**100%**		

NOTE: Students must achieve a course grade of at least 50% to pass this course.

❖ At least **20%** of student's grade based on individual work will be returned to students prior to the last date to drop a course in good academic standing .

Citation Format for Essays and Term Papers
All essay assignments, term paper and other written works must adhere with APA citation format. Technical errors (spelling, punctuation, proofing, grammar, format, and citations) and/or inappropriate levels of language or composition will result in marks being deducted. You are encouraged to obtain assistance from the Writing Centre (www.ryerson.ca/writingcentre) for help with your written communications as needed.

You can find APA guidelines and academic referencing from the following online resources:

Student Learning Support > Online Resources > Writing Support Resources
- APA Basic Style Guide

Ryerson Library Citations and Style Guides
- APA Style

8.0 TOPICS – SEQUENCE & SCHEDULE

Session	Weekly Topic with Learning Objectives	Readings
1	Role of Database Management and Relational Model Overview - Explain the advantages of Relational Databases - Explain Relational DB development and role of DBMS - Explain Relational Concept - Explain Primary and Foreign Keys and Referential Integrity	Chap 1 and 2
2	Simple Query formation in SQL - Analyze information request requirements - Explain components of SELECT statement - Design and implement a single table SQL query - Implement Conditional and Ordering requirements - Analyze output for completeness and accuracy	Chap 7
3	Simple Aggregates - Implement String searches - Implement Date functions - Implement Simple Aggregate functions	Chap 7

4	Complex Aggregates, Joins and DML Commands • Design and Implement queries using GROUP BY • Design and Implement queries using INNER JOINS • Apply Data Manipulation commands	Chap 7
5	Midterm Exam	
6	The Relationship Model • Analyze Information Needs and Business Rules • Identify Constraints • Design and Implement an ERD	Chap 3
7	Entity Relationship Diagrams • Implement the Transform of Many to Many Relationships • Define and Implement Conceptual Relational Model	Chap 4
8	Complex Relationship Diagrams and Physical Design of Relational Model • Implement Recursive and Network Hierarchical structures • Implement Multiple and Bi-Directional Relationships • Design Entities to support Referential Integrity	Chap 5
9	Sub Queries • Design and Implement Sub Queries to access Aggregate Results • Design and Implement Sub Queries to for Recursive Relations • Combine Sub Query results in single command	Chap 7
10	Views • Explain the role and structure of Views • Design and Implement Views • Design and Implement queries that utilize Views	Chap 8 Sect 5
11	Normalization • Understand the role of Normalization in Data Base Design • Define the rules of Normalization • Create a set of Normalized Relations for a data structure • Convert a set of Relations to an ERD	Chap 6
12	Review • Adequately prepare for Final Exam	

9.0 VARIATIONS WITHIN A COURSE

All sections of a course (Day and CE sections) will follow the same course outline and will use the same course delivery methods, methods of evaluation, and grading schemes. Any deviations will be posted on D2L Brightspace once approved by the course coordinator.

10.0 OTHER COURSE, DEPARTMENTAL, AND UNIVERSITY POLICIES

For more information regarding course management and departmental policies, please consult the '**Appendix of the Course Outline**' which is posted on the Ted Rogers School of Information Technology Management website.

NOTE: Students must adhere to all relevant university policies found in their online course shell in D2L and /or on the following URL: senate-course-outline-policies.

The appendix covers the following topics:

1. Attendance & Class Participation

2. Email Account

3. Request for Academic Consideration

4. Examinations & Tests

5. Late Assignments

6. Standard of Written Work

7. Academic Grading Policy

8. Academic Integrity

9. Student Rights