
Course Plan

Cégep de la Gaspésie et des Îles
Montreal Campus

Continuing Education Service

Mobile Application Development
LEA.C8

Structures and Databases **420-ENL-MT**

WEIGHTING: 2-2-2 DURATION: 60 hours UNITS: 2,00

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Fall 2019

Group 314

1. GENERAL COURSE DESCRIPTION

Students become familiar with:

- The characteristics of a database system.
- The concepts needed to build, use and maintain databases as they're presented in the relational model/framework.
- The processes by which databases are designed and evaluated.
- The languages used to code relational databases (namely, various forms of SQL, with emphasis on Oracle)

2. PLACE OF THE COURSE WITHIN THE PROGRAM

This course is offered in the second semester. It introduces students to databases and database systems, as well as the methods and languages used to design and code databases.

3. COMPETENCY AND ELEMENTS OF THE COMPETENCY

Code	Competency	Elements
ENF5	Structuring data.	1. Become familiar with the request.
		2. Format the data.
		3. Create a database.
		4. Use a database.

4. CONTENT

Elements	Performance criteria	Content
1. Become familiar with the request.	1.1 Correct evaluation of the project's characteristics, based on: <ul style="list-style-type: none"> · Service interfaces to use for the storage procedures; · Type of database required; · Type of programming language needed to create services. 1.2 Correct identification of the data to be retained.	How to design a relational database <ul style="list-style-type: none"> ● The main characteristics of a database system ● The relational model: the foundation of the Entity-Relation (ER) diagram ● Designing a relational database: a 2 steps process
2. Format the data.	2.1 Correct formatting, based on: <ul style="list-style-type: none"> · A sufficient volume of data and available disk space; · Ease of use for the data and acceptable execution speeds; · Available data format types (table, linked list, map, etc.). 	<ul style="list-style-type: none"> ● The criteria of good design (integrity constraints, normal forms) ● Data types ● Indexes
3. Create a database.	3.1 Appropriate choice of the right technology. 3.2 Rigorous design of the database architecture. 3.3 Effective optimization of the database by creating an index; 3.4 Proper importation (integration) of data into the database ; 3.5 Appropriate conversion of existing data.	Relational query languages and queries (namely Oracle) <ul style="list-style-type: none"> ● To create a database: SQL statements ● Views ● Stored procedures ● Automatic operations: triggers, on update, on delete
4. Use a database.	4.1 Writing correct SQL requests for the database; 4.2 Correct data updating.	Relational query languages and queries (namely, Oracle) <ul style="list-style-type: none"> ● Select, from, where ● Operators ● Joins ● Aggregate functions ● Group by ● Having ● Database security

5. TEACHING METHODS

Lecture: The lecture portion of this course will provide an understanding of course fundamentals, specifically by exploring the course theoretical content. It will help give you a head start understanding of the basic knowledge prior to the exercises. The lecture is also designed to give you a broader view of the course. All overhead documents used during each lecture will be posted on the overall course website.

Exercises: Exercises will be used to explore course content through the use of manipulative examples, software, and other activities. These are designed to explore the course materials, teaching activities, additional examples, and additional information.

Homework: Homework is a very important part of the course and in order to fully master the topics it is essential that you work carefully on every assignment and try your best to complete every problem. There will be two homework assignments. Homework is due at the start of class. Late homework will not be accepted (no exceptions).

Tests, quizzes and in class activities: Tests, quizzes and in class activities are a very important part of the course and in order to fully master the topics it is essential that you work carefully on every assignment and try your best to complete every problem.

6. LEARNING ACTIVITIES

- Situation mapping.
- Producing data models
- Creating and using a database.
- Carrying out operations on various types of tables.
- Solving relational algebra problems and translating them to Oracle

7. EVALUATION

Formative evaluation:

Formative evaluation is an ongoing diagnostic type of assessment which provides feedback to students and teachers over the course of instruction. Students do not receive a mark for any type of formative evaluation as opposed to summative evaluation.

The lecture will involve different tests, quizzes, and in-class activities which will be given in the form of labs but count as part of the lecture component.

Summative evaluation

The term-end evaluation will consist of a final exam and an integrative project. The final exam and project will be inspired from the homework and in-class activity assignments. Information about these will be posted on the course site. The final exam and project evaluation will be held in class instead of a lecture.

There will be 3 in-class activities and the best results for 2 out of 3 activities will count. Each of the two (2) best results will count for 20 %.

Instrument	Elements evaluated	Weighting	When
Three (3) in class activities	<ol style="list-style-type: none"> 1. Become familiar with the request. 2. Format the data. 3. Create a database. 4. Use a database. 	40% (2 X 20%)	NA
Term-end evaluation : Project	<ol style="list-style-type: none"> 1. Become familiar with the request. 2. Format the data. 3. Create a database. 4. Use a database. 	30%	November 2, 2019
Term-end evaluation : Final Exam	<ol style="list-style-type: none"> 1. Become familiar with the request. 2. Format the data. 3. Create a database. 4. Use a database. 	30%	November 3, 2019
TOTAL		100	

8. ATTENDANCE AND LATENESS POLICY

If a student arrives late for class, the student could be allowed to enter the class. The teacher will register the absence for minimum cumulative periods of 30 minutes. For example, if a student arrives 10 minutes late, he or she will be marked absent for 30 minutes. If a student arrives after 40 minutes, he or she will be marked absent for 1 hour.

However, the teacher reserves the right to have the student wait until a more appropriate time for the student to enter the classroom.

Nonetheless, if a student arrives late when there is an evaluation or when an important part of the subject matter has already been introduced, the teacher reserves the right to decide if the student can or cannot enter the classroom

9. REQUIRED INSTRUCTION MANUAL

Textbooks: None required.

Resource materials: No required specific textbook for this course. Important course information will be posted on the course website, which is the main method of communicating information. It is the student's responsibility to check the website regularly for important course information.

Software and tools: A bundle of software and tools will be introduced during the course in different workshop activities.

10. BIBLIOGRAPHY

Elmasri, R. & Navathe, S.B. -- Fundamentals of Database Systems -- Boston : Pearson/Adison Wesley (2011).

Author unknown, *Normalization of database*,
<https://www.studytonight.com/dbms/database-normalization.php> (page consulted on October 17, 2018).

Oracle Guide, https://docs.oracle.com/cd/E11882_01/server.112/e25494.pdf.

Author unknown, *SQL Tutorial*, <https://www.w3schools.com/sql/default.asp>
(page consulted on October 22, 2018).

Connolly, Thomas M.; Begg, Carolyn E. (2014). *Database Systems - A Practical Approach to Design Implementation and Management* (6th ed.).

Garcia-Molina, H., Ullman, J. D. & Widom, J. -- Database Systems : the Complete Book -- Upper Saddle River, N.J.: Prentice Hall (2009).

Silberschatz, A., Korth, H. F. & Sudarshan, S. -- Database System Concepts -- New York : McGraw-Hill (2011).

M.A. Weiss, *Data Structures and Algorithm Analysis In C++*, The Benjamin/Cummings Publishing Company Inc., 1994.

Michael V. Mannino, *Database, Design, Application Development, & Administration*, 2nd ed., McGraw-Hill, 2004.

1. Attendance in class and for practical training

1.1. Regular participation in the course (activities inside and outside the classroom) is considered essential for skills mastery.

1.2. Class attendance will be recorded at each class.

1.3. Students arriving late for class may be refused access by the teacher.

1.4. It is the student's responsibility to provide the teacher or academic advisor with a reason for an absence. During a practical activity, the student must give a reason for an absence to the activity sponsor and to the supervisor

1.5. For continuing education purposes, the following reasons can be given to justify an absence: legal situations (supported by a document), death of a family member, health care (with a professional's note) and parental obligation.

1.6. However, even in the case of justified absences, the student is at risk of being expelled from the course after a maximum of 20%. The teacher will inform the coordinator, who will decide what action to take.

1.7. A student who must be absent for an undetermined period because of exceptional circumstances must inform the academic advisor, who will decide what action to take.

1.8. Presence at practical activities is compulsory. An absent student may be expelled from his or her practical activity for an unjustified absence. The activity's supervisor will inform the academic advisor, who will decide what action to take.

1.9. A student absent without a reason deemed valid by the teacher must not expect the teacher to provide special attention aimed at making up missed learning.

2. Language quality

2.1. In accordance with the Institutional Language Policy, the Continuing Education Service must strive to ensure students' language quality.

2.2. For assignments and exams, the summative assessment of language quality counts for 10% of the mark.

2.3. In programs and courses where mastery of the written language is a learning objective, the Continuing Education Service reserves the possibility of setting the summative assessment of language quality at more than 10%. The decision will be made by the program team.

2.4. The Continuing Education Service reserves the right to use the clauses concerning language quality that are found in the Departmental Learning Policy of the departments in which continuing education courses and programs originate. Thus, the maximum credit given for language may, in some cases, exceed 10%.

Clause 2.9.3 of the Institutional Policy on the Evaluation of Student Achievement

2.9.3 For allophone clients and immersion students, 10% of marks will be given for language quality in the first year, but a student will be allowed to make up entirely the 10% if he or she makes corrections to an assignment within 5 days. In the second year, a total of 10% will also be given for language quality. A student can make up half (5%) if he or she makes corrections to an assignment. In the third year, the same rules apply for all students.

For exams taken in class, there is no penalty for language quality for allophone students.

3. Presentation of assigned work

3.1. The manner in which assigned work must be handed in will be in accordance with the usual methodological standards. Students should consult the student guide delivered to them during the orientation activity.

3.2. The deadlines set for handing in written work and presenting activities must be met.

3.3. The student is responsible for handing in his or her work before the deadline, which must be respected even if the student is absent.

3.4. A penalty of 10% will be applied for each late day up to a maximum of 50% (5 days) to work handed in late. The student must give the teacher prior notice that work will be handed in late; if not, the work can be refused. After 5 days, unless there are extenuating circumstances, a mark of zero will be given for work handed in late.

4. Pass Mark

Clause 2.4 of the Institutional Policy on the Evaluation of Student Achievement

2.4.1 The pass mark is 60% (Section 27, College Education Regulations)

5. Cheating and plagiarism

Clause 2.12 of the Institutional Policy on the Evaluation of Student Achievement

2.12.1 All cheating, attempt to cheat or collaboration in cheating will result in a mark of zero for the test or work involved. In such cases, the teacher must seize the documents and make a report,

which must be sent to the centre's office by the department coordinator or academic advisor for continuing education. The use of MP3 players, cell phones and laptop computers (unless authorized) is prohibited.

2.12.2 A student who plagiarises, that is, who steals or passes off as his or her own any work whatsoever, regardless of the source, of any author without giving a proper credit to the author will be given a mark of zero for the work handed in

2.12.3 Any subsequent cheating or plagiarism by that student will result in a mark of zero for the entire course involved.

6. Review of marks

Clause 2.15 of the Institutional Policy on the Evaluation of Student Achievement

2.15.1 Any student who wants a review of the mark given for assigned work or for a summative assessment test during a session must ask the teacher within 5 working days following receipt of the mark.

Review of the mark for a final assessment test

2.15.2 Any student who wants a review of the mark given for a final assessment test, must address his or her request to the academic office or the academic advisor for continuing education within 10 working days following the entry of the final mark in Omnivox.

2.15.3 The department must form a review committee made up of three teaching staff members (including the teacher concerned). The committee will send the final mark after review to the Studies Department. For continuing education, the review committee must be made up of two teaching staff members and include the teacher concerned as well as the pedagogical counsellor.

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