

**STATE UNIVERSITY OF NEW YORK
COLLEGE OF TECHNOLOGY
CANTON, NEW YORK**



MASTER SYLLABUS

CITA 215 - DATABASE APPLICATIONS AND CONCEPTS

**Created by: Robert House
Updated by: Minhua Wang**

**CANINO SCHOOL OF ENGINEERING TECHNOLOGY
DECISION SYSTEMS
FALL 2018**

- A. **TITLE:** Database Applications and Concepts
- B. **COURSE NUMBER:** CITA 215
- C. **CREDIT HOURS:** (Hours of Lecture, Laboratory, Recitation, Tutorial, Activity)

Credit Hours: 3
 # Lecture Hours: 2 per week
 # Lab Hours: 2 per week
 Other: per week

Course Length: 15 Weeks

- D. **WRITING INTENSIVE COURSE:** No
- E. **GER CATEGORY:** None
- F. **SEMESTER(S) OFFERED:** Fall/Spring
- G. **COURSE DESCRIPTION:** Database management systems are studied in the context of a SQL-based product. Topics include: logical organization versus physical organization; relational, network and hierarchical models; normalization; installation and administration of a database server; and the creation of a web-based user-interface to manipulate tables. A term project is assigned.
- H. **PRE-REQUISITES/CO-REQUISITES:**
- Pre-requisite(s): CITA152 Computer Logic
 - Co-requisite(s): none
 - Pre- or co-requisite(s): none

I. **STUDENT LEARNING OUTCOMES:**

By the end of this course, the student will be able to:

<u>Course Student Learning Outcome [SLO]</u>	<u>PSLO</u>	<u>ISLO</u>
a. Install and configure a database server	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
b. Describe the major database models	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
c. Apply course concepts to model an application using a database	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
d. Design a usable database with appropriate normalization and structure	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
e. Build and query a relational database using MS Access or MySQL	3. Demonstrate a solid understanding of the methodologies and foundations of IT	5
f. Working in teams, design and implement appropriate user	2. Identify issues and collaborate on solutions concerning IT in an effective and professional manner	2[CA, PS] 4[T]

interfaces for a database application	4. Apply problem solving and troubleshooting skills	5
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J. **APPLIED LEARNING COMPONENT:** Yes X No _____

- Classroom/Lab

K. **TEXTS:** None

L. **REFERENCES:** Various online resource such as SUNY Canton Library Books24x7
ITPro Book Database

M. **EQUIPMENT:** Computer lab classroom with virtual machine software installed

N. **GRADING METHOD:** A-F

O. **SUGGESTED MEASUREMENT CRITERIA/METHODS:**

- Exams
- Assignments

P. **DETAILED COURSE OUTLINE:**

- I. Introduction: A brief history of the development of database models.
 - A. The evolution of data structures and access methods: flat files, master files, indexed sequential files; hierarchical, network, matrix, and relational databases; indices, search methods, etc.
 - B. A closer look at the hierarchical and relational database models: common applications for each and comparisons.
- II. Database server installation and administration
 - A. Installation of a LAMP (or WAMP) server
 - B. Configuring the Apache HTML server

C. Configuring the MySQL database server

III. Introduction to HTML

- A. Creation and structure of a web page
- B. HTML Forms and their relation to entering data in a database

IV. Introduction to PHP

- A. Writing PHP scripts – form and function
- B. Processing HTML Form input
- C. Displaying SQL query data

V. Introduction to database design.

- A. Entity-attribute-relationship modeling.
- B. Data normalization.

VI. Data protection:

- A. recovery and concurrency.
- B. security and integrity.

VII. SQL: the build and insert statements; drop, create, etc.

VIII. More SQL: the select and update statements, joining tables, etc.

IX. Database performance and optimization.

X. Designing the user interface.

Q. **LABORATORY OUTLINE:** N/A