CSC K233 Course Syllabus

Fall 2011

Course: CSC K233 – Database Development I

Program: Computer Science

Hours: Lecture M 5:20 pm–8:05 pm (Room B/227) Lab M 8:10 pm-9:50 pm (Room B/227)

Instructor: Allan Anderson
Office: Room C106
Campus Office Hours: Monday (4:00 pm - 5:15 pm)
                             Wednesday (1:00 pm - 2:00 pm, 5:15 pm - 6:00 pm)
Online Discussions: will be available for all learning modules
Messages: Blackboard Learn Mail preferred
                  Phone: (860) 885-2392 (Voice Mail)
                  E-mail: aanderson@trcc.commnet.edu

Delivery Format: on-ground with limited online via Blackboard Learn

Dates: Aug. 29 – Dec. 12. No class on Sep. 5

Textbook: Peter Rob and Carlos Cornel, *Database Systems: Design, Implementation, & Management, Ninth Edition*, Course Technology Incorporated, 2011, 2011, 978-0-538-46968-5
Itzik Ben-Gan, *Microsoft SQL Server 2008 T_SQL Fundamentals,* Microsoft Press, 2009, 0-7356-2601-4

Course Objectives: The main objective of this course is to teach students the fundamental concepts underlying the current database technology, the relational database model. The course will attempt to solidify the concepts by exposing the student to a specific Database Management System (DBMS), SQL Server, that employs the relational model, and by introducing the student to a database query language, Transact SQL. Specifically at the course completion students will be able to describe, design and use relational database features including but not limited to the following:

Database Modeling
- Describe the difference between data and information, what a database is, the various types of databases, and why they are valuable assets for decision making
- Understand the importance of database design
- Describe data modeling and why data models are important
- Describe what business rules are and how they influence database design
- List data models by level of abstraction classifications
- List the relational model's basic component: relations
- Understand that relations are logical constructs composed of rows (tuples) and columns (attributes)
- Understand that relations are implemented as tables in a relational DBMS
- List the main characteristics of entity relationship components
- Describe the database design process
- List the characteristics of good primary keys and understand how to select them
- Understand what normalization is and what role it plays in the database design process
- Learn about the normal forms 1NF, 2NF, 3NF, and BCNF
- Understand how normal forms can be transformed from lower normal forms to higher normal forms
- Understand that normalization and ER modeling are used concurrently to produce a good database design
- Understand that some situations require denormalization to generate information efficiently

Database Querying
- Learn the basic commands and functions of SQL
- Use SQL for data administration (to create tables, indexes, and views)
- Use SQL for data manipulation (to add, modify, delete, and retrieve data)
- Use SQL to query a database for useful information
- Learn about the relational set operators UNION, UNION ALL, INTERSECT, and MINUS
- Use the advanced SQL JOIN operator syntax
- Design and use the different types of subqueries and correlated queries
- Use SQL functions to manipulate dates, strings, and other data.

Software: This course will specifically use Microsoft SQL Server 2008 relational database software and the Microsoft Visio Professional database modeling software. These will be available to students as part of the MSDN Academic Alliance.

Supplies and Materials: Removable media will be required. A USB memory device with a minimum of 64MB is recommended.

Lab Assignments: Weekly assignments from the end of chapter problems or from additional instructor handouts will be given. The hand-in format will be via Blackboard Learn unless otherwise noted. Class assignments should be submitted on or before the due date and time. A late assignment will lose 10% of the score for that assignment if submitted late. No assignments will be accepted after the cutoff date. Assignments will be graded on professionalism, accuracy, style and completeness. The details for each assignment, including work to be done and the due date and cutoff date, will be posted in that assignment's drop box. Students are encouraged to interact with the instructor or other students on these assignments via Blackboard Learn discussion boards but must personally perform the necessary actions to complete the assignments.

Grading and Evaluation Criteria:
35 % of the grade is based on chapter examinations
35 % of the grade is based on a final examination
30 % of the grade is based on lab assignments

Final course grades will be assigned as objectively as possible, according to the following scale (a class curve may be used at the discretion of the instructor):

90 - 100%	A- to A
80 - 89%	B- to B+
70 - 79%	C- to C+
60 - 69%	D- to D+
59% and Below	F

College Withdrawal Policy: Students may withdraw, through the Registrar's Office, for any reason. For the Fall 2011 semester, the last date to do this is December 9.The withdrawal process must be initiated by the student. Failure to do so will result in a semester grade based on the work completed before the student stopped attending the class.

Academic Integrity: Students are expected to do their own work in this class. Working together to better understand the material is acceptable. Submitting duplicate work is not and will adversely affect the assignment grade. Actively participating in the discussion boards both to ask and to answer questions is expected of all students. Posting of detailed instructions for "how to" responses to questions is encouraged but posting of a complete solution is not. Example violations include but are not limited to:
o   Copying or sharing a file or any portion of a file from another student.
o   Sharing or allowing another student to copy your files or any portion of a file.
o   Duplicating or distributing copies licenses for software programs and/or services.
o   Unauthorized access or use of university computers, computer systems or computer network.

Students with Disabilities: If you are a student with a disability and believe you will need support services and/or accommodations for this class, please contact the Disabilities Support Services at TRCC. Please note that the instructor cannot provide accommodations based upon disability until the instructor has received an accommodation letter from the Disabilities Counselor.

Week	Topics	Rob/Cornel Text Assignments
		(assignments from the Ben-Gan text will be added)
1 8/29	Database Systems	Chapter 1 Chapter 1 problems
2 9/12	Database Systems	Chapter 1 Chapter 1 problems
3 9/19	Data Models	Chapter 2 Chapter 2 problems
4 9/26	Chapter 1 & 2 Test The Relational Database Model	Chapter 3 Chapter 3 problems
5 10/3	Entity Relationship (ER) Modeling Background to T-SQL Querying and Prog.	Chapter 4 Chapter 4 problems Chapter 1(Ben-Gan)
6 10/10	Entity Relationship (ER) Modeling Background to T-SQL Querying and Prog.	Chapter 4 Chapter 4 problems Chapter 1(Ben-Gan)
7 10/17	Chapter 3 & 4 Test Introduction to Structured Query Language (SQL)	Chapter 7 Chapter 7 problems
8 10/24	Introduction to Structured Query Language (SQL)	Chapter 7 Chapter 7 problems
9 10/31	Introduction to Structured Query Language (SQL)	Chapter 7 Chapter 7 problems
10 11/7	Chapter 7 Test Advanced SQL	Chapter 8 Chapter 8 problems
11 11/14	Advanced SQL	Chapter 8 Chapter 8 problems
12 11/21	Chapter 8 Test Advanced Data Modeling	Chapter 5 Chapter 5 problems
13 11/28	Chapter 5 Test Normalization of Database Tables	Chapter 6 Chapter 6 problems
14 12/5	Normalization of Database Tables Chapter 6 Test	Chapter 6 Chapter 6 problems
15 12/12		Final Exam

Note: The foregoing course outline is subject to change as conditions warrant.