DATE OF LAST REVIEW: 02/2013

CIP CODE: 11.0901

SEMESTER: Departmental Syllabus

COURSE TITLE: Structured Query Language (SQL)

COURSE NUMBER: CIST0151

CREDIT HOURS: 3

INSTRUCTOR: Departmental Syllabus

OFFICE LOCATION: Departmental Syllabus

OFFICE HOURS: Departmental Syllabus

TELEPHONE: Departmental Syllabus

EMAIL: Departmental Syllabus

KCKCC-issued email accounts are the official means for Electronically communicating with our students.

PREREQUISITE(S): None

REQUIRED TEXT: Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required texts for your particular class.

COURSE DESCRIPTION:

Structured Query Language (SQL) is a current computer language that is used by diverse individuals such as home computer owners, owners of small businesses, end users in large organizations and programmers. This introductory course will teach the theoretical and practical foundation concepts of databases and SQL. Upon completion of the course, students will be able to define database structure, construct database tables, set up constraints, make queries, manipulate and access data from a database. Students will acquire an extensive knowledge of building database tables and using SQL commands to manipulate data for report generation. New features from Oracle and Microsoft SQL Server database programs will also be discussed. Students will use a Client/Server Laboratory to practice the theory discussed in class.

METHOD OF INSTRUCTION:
A variety of instructional methods may be used depending on content area. These include but are not limited to: lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.
COURSE OUTLINE:

I. Introduction
   A. Prerequisites
   B. Course Materials
   C. Terminology

II. Introduction to Database Design Fundamentals
   A. Database Concepts
   B. Relational Databases
   C. Entities, Attributes and relationships
   D. Functional Dependencies
   E. Primary Keys
   F. Database Design:
      -Methods
      -Design Requirements
      -Process Examples
   G. Normalization
   H. Diagrams for Database Design

III. An introduction to SQL and PL/SQL using MySQL
   A. Starting the SQL engine
   B. Obtaining Help
   C. Creating a Database
   D. Changing the Default Database
   E. Creating a Table
   F. Running MySQL Commands
   G. Editing SQL Commands
   H. Data types
   I. Adding Rows to a Table
   J. Viewing Table Data
   K. Correcting Errors in a Database
   L. Saving SQL commands
   M. Describing a Table

IV. Single Table Queries
   A. Constructing Simple Queries
   B. Retrieving Data
   C. Sorting Data
   D. Using Functions
   E. Nesting Queries
   F. Grouping
   G. Summary of SQL Clauses, Functions, and Operators

V. Multiple-Table Queries
   A. Querying multiple tables
   B. Comparing JOIN, IN and EXITS
   C. Set Operations
   D. Special Operators

VI. Updating Data
   A. Creating a New Table from an Existing Table
   B. Changing Existing Data in a Table
C. Adding New Rows to a Table
D. Deleting Existing Rows from a Table
E. Changing a Table Structure
F. Transactions
G. Dropping a Table

VII. Importing and Exporting Data
A. Importing Data into a Database
B. Exporting Data from a Table
C. Optimizing Tables in a Database
D. Optimizing Queries in a Database

EXPECTED LEARNER OUTCOMES:
A. The student will be able to identify course materials and define terminology related to ANSI and Oracle SQL (PL/SQL).
B. The student will be able to understand how to manipulate a database before working with SQL.
C. The student will be able to understand how to manipulate a database using SQL statements.
D. The student will be able to explain concepts associated with relational databases, functional dependence and primary keys.
E. The student will be able to create and update Tables.
F. The student will be able to understand and implement simple VIEWS.
G. The student will be able to understand and implement Sequences.
H. The student will be able to maintain a database.
I. The student will demonstrate an ability to meet deadlines.

COURSE COMPETENCIES:

Upon successful completion of this course:

The student will be able to identify course materials and define terminology related to ANSI and Oracle SQL (PL/SQL).

1. The student will be able to identify course materials for Oracle and ANSI SQL.
2. The student will be able to identify terminology as related to Oracle and ANSI SQL.

The student will be able to understand how to manipulate a database before working with SQL.

3. The student will be able to define terminology and best practices of Database Design.

The student will be able to understand how to manipulate a database using SQL statements.

4. The student will be able to write Basic SQL Select Statements.
5. The student will be able to list the capabilities of SQL SELECT statements.
6. The student will be able to differentiate between SQL statements and ISQL*Plus commands.
7. The student will be able to Restricting and Sorting Data.
8. The student will be able to limit the rows retrieved by a query.
9. The student will be able to Sort the rows retrieved by a query.
10. The student will be able to describe various types of functions available in SQL.

The student will be able to explain concepts associated with relational databases, functional dependence and primary keys.
11. The student will be able to use character, number, and date functions in Select statements.
12. The student will be able to use conversion functions.
13. The student will be able to display data from Single and Multiple tables.
14. The student will be able to write single-row and multiple-row sub-queries.
15. The student will be able to produce readable output with iSQL*Plus.
16. The student will be able to write queries that require a substitution variable.
17. The student will be able to know how to manipulate data.
18. The student will be able to create and execute script files.

   The student will be able to create and update Tables.

19. The student will be able to create Tables.
20. The student will be able to update rows into a Table.
21. The student will be able to delete rows into a Table.
22. The student will be able to merge rows in a Table.

   The student will be able to understand and implement VIEWS.

23. The student will be able to describe VIEWS.
24. The student will be able to create VIEWS.
25. The student will be able to retrieve data.
26. The student will be able to insert, update and delete data through a View.

   The student will be able to understand and implement Sequences.

27. The student will be able to create Sequences.
28. The student will be able to maintain Sequences.
29. The student will be able to use Sequences.

   The student will be able to maintain a database.

30. The student will be able to create Indexes.
31. The student will be able to maintain Indexes.
32. The student will be able to maintain a database.

   The student will demonstrate an ability to meet deadlines

33. The student will demonstrate an ability to meet deadlines.

ASSESSMENT OF LEARNER OUTCOMES:

Student progress is evaluated by means that include, but are not limited to, exams, written assignments, and class participation.

SPECIAL NOTES:

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and
discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

Kansas City Kansas Community College offers equal educational opportunity to all students as well as serving as an equal opportunity employer for all personnel. Various laws, including Title IX of the Educational Amendments of 1972, require the college’s policy on non-discrimination be administered without regard to race, color, age, sex, religion, national origin, physical handicap, or veteran status and that such policy be made known.

Kansas City Kansas Community College complies with the Americans with Disabilities Act. If you need accommodations due to a documented disability, please contact the Director of the Academic Resource Center in Room 3354 or call 288-7670.