SYLLABUS

DATE OF LAST REVIEW: 02/2013
CIP CODE: 11.0901
SEMESTER: Spring 2011
COURSE TITLE: Data Design and Implementation (MSCE SQL)
COURSE NUMBER: CIST0252
CREDIT HOURS: 4
INSTRUCTOR: Departmental Syllabus
OFFICE LOCATION: Departmental Syllabus
OFFICE HOURS: Departmental Syllabus
TELEPHONE: Departmental Syllabus
EMAIL: Departmental Syllabus

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PREREQUISITES: CIST-0226 SQL Server

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

COURSE DESCRIPTION:
This course will prepare the student for work in a medium to enterprise computing environment that uses SQL Server, implementing relational databases in environments with the following characteristics:

- Heterogeneous databases
- SQL Server security integrated with Windows Authentication
- Client/server configurations of 50 to 5,000 or more users
- Web configurations that use Internet Information Services (IIS) or COM+
- Databases as large as 2 TB
- Multiple installations of SQL Server

Preparation for Microsoft Exam 70-029(MCSE elective)

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. Working with a Logical Data Model

II. Considerations include entity composition and normalization.
   A. Specify entity attributes.
   B. Specify degree of normalization.
   C. Considerations include FOREIGN KEY constraints, PRIMARY KEY constraints, and UNIQUE constraints.
   D. Specify attributes that uniquely identify records.
   E. Specify attributes that reference other entities.

III. Considerations include CHECK constraints, data types, and nullability.
    A. Specify scale and precision of allowable values for each attribute.
    B. Allow or prohibit NULL for each attribute.
    C. Specify allowable values for each attribute.

IV. Implementing the Physical Database

IV. Considerations include file groups, file placement, growth strategy, and space requirements.
    A. Specify space management parameters. Parameters include autoshrink, growth increment, initial size, and maxsize.
    B. Specify file group and file placement. Considerations include logical and physical file placement.
    C. Specify transaction log placement. Considerations include bulk load operations and performance.
    D. Objects include constraints, indexes, stored procedures, tables, triggers, user-defined functions, and views.
    E. Specify table characteristics. Characteristics include cascading actions, CHECK constraints, clustered, defaults, FILLFACTOR, foreign keys, nonclustered, primary key, and UNIQUE constraints.
    F. Specify schema binding and encryption for stored procedures, triggers, user-defined functions, and views.
    G. Specify recompile settings for stored procedures.
    H. Specify index characteristics. Characteristics include clustered, FILLFACTOR, nonclustered, and uniqueness.

V. Alter database objects to support replication and partitioned views.

VI. Support merge, snapshot, and transactional replication models.
    A. Design a partitioning strategy.
    B. Design and create constraints and views.
    C. Resolve replication conflicts.
    D. Troubleshoot failed object creation.

VII. Retrieving and Modifying Data

    A. Import and export data. Methods include the bulk copy program, the Bulk Insert task, and Data Transformation Services (DTS).
    B. Manipulate heterogeneous data. Methods include linked servers, openquery, openrowset, and openXML.
    C. Retrieve, filter, group, summarize, and modify data by using Transact-SQL.
    D. Manage result sets by using cursors and Transact-SQL. Considerations include locking models and appropriate usage.
    E. Extract data in XML format. Considerations include output format and XML schema structure.

VIII. Programming Business Logic

    A. Manage data manipulation by using stored procedures, transactions, triggers, user-defined functions, and views.
    B. Implement error handling in stored procedures, transactions, triggers, and user-defined functions.
    C. Pass and return parameters to and from stored procedures and user-defined
functions.
D. Validate data.
E. Enforce procedural business logic by using stored procedures, transactions, triggers, user-defined functions, and views.
F. Specify trigger actions.
G. Design and manage transactions.

IX. Manage control of flow.
A. Filter data by using stored procedures, triggers, user-defined functions, and views.
B. Troubleshoot and optimize programming objects. Objects include stored procedures, transactions, triggers, user-defined functions, and views.
C. Tuning and Optimizing Data Access

EXPECTED LEARNER OUTCOMES:
A. Upon completion of the course the student will be able to identify course materials and define terminology as related to SQL Server.
B. Upon completion of the course the student will be able to implement SQL Server
C. Upon completion of the course the student will be able to Design an new database in SQL Server.
D. Upon completion of the course the student will be able to Evaluate and optimize the performance of an execution plan.
E. Upon completion of the course the student will be able to Populate the database with data from an external data source.
F. Upon completion of the course the student will be able to Create tables that enforce data integrity and referential integrity
G. Upon completion of the course the student will be able to
H. Create result sets that provide summary data.

COURSE COMPETENCIES:

Upon completion of the course the student will be able to identify course materials for SQL Server.

1. The student will be able to identify terminology as related to SQL Server.
2. The student will be able to define terminology as related to SQL Server.
3. The student will be able to identify prerequisites as related to SQL Server.

Upon completion of the course the student will be able to identify SQL Server operating options and architecture.

4. The student will be able to identify SQL Server operating system options.
5. The student will be able to identify SQL Server architecture.
6. The student will be able to identify SQL Server platforms.
7. The student will be able to interpret data and create options as related to SQL Server.
8. The student will be able to interpret data and create relational database as related to SQL Server.
9. The student will be able to interpret data and create a relational database.
10. The student will be able to interpret data and manage a relational database.
11. The student will be able to identify tables and their applications as related to SQL Server.
12. The student will be able to interpret tables as found in SQL Server.
13. The student will be able to interpret data and create tables in SQL Server.

Upon completion of the course the student will be able to identify elements required to make SQL transactions.

14. The student will be able to identify the elements of the SQL Server select statement.
15. The student will be able to interpret data and create an SQL Server select statement.
The student will be able to identify column elements in SQL Server.
17. The course the student will be able to interpret data and create columns in SQL Server.
18. The student will be able to identify row elements in SQL Server.

Upon completion of the course the student will be able to identify the language elements of SQL Server.
19. The student will be able to identify the language elements of SQL Server.
20. The student will be able to define language elements in SQL Server.
21. The course the student will be able to interpret data and create query statements in SQL Server.
22. The course the student will be able to perform queries in SQL Server.
23. The course the student will be able to identify the elements of join procedures in SQL Server.

Upon completion of the course the student will be able to interpret data and create query statements in SQL Server.
24. The student will be able to interpret data and create query statements in SQL Server.
25. The student will be able to interpret data and use SQL Server Web Tools.
26. The student will be able to interpret data and create a Web Page using SQL Server.

Upon completion of the course the student will be able to identify SQL Server Web Tools.
27. The student will be able to identify SQL Server Web Tool elements.
28. The student will be able to interpret data and use SQL Server Web Tools.
29. The student will be able to interpret data and apply permission validation procedures in SQL Server.
30. The student will be able to interpret data and apply security procedures as related to SQL Server.

Upon completion of the course the student will be able to identify security procedures as related to SQL Server.

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.

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