Course Description
This course is designed to teach the fundamentals of database and to prove introductory knowledge of and skills with databases, including relational databases using SQL.

<table>
<thead>
<tr>
<th>Intended Grade Level</th>
<th>9-12</th>
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<tbody>
<tr>
<td>Units of Credit</td>
<td>1.0</td>
</tr>
<tr>
<td>Core Code</td>
<td>35.02.00.00.021</td>
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<td>Concurrent Enrollment Core Code</td>
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<tr>
<td>Prerequisite</td>
<td>Digital Literacy suggested – Introduction to Information Technology, Computer Science Principles</td>
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<tr>
<td>Skill Certification Test Number</td>
<td>#944</td>
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<tr>
<td>Test Weight</td>
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<td>License Type</td>
<td>CTE and/or Secondary Education 6-12</td>
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<tr>
<td>Required Endorsement(s)</td>
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<tr>
<td>Endorsement 1</td>
<td>Database Development</td>
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<tr>
<td>Endorsement 2</td>
<td>N/A</td>
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<tr>
<td>Endorsement 3</td>
<td>N/A</td>
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ADA Compliant: July 2018
STRAND 1
The student will understand database concepts.

Standard 1
Understand relational database concepts.
  • Understand what a relational database is.
  • Understand the need for relational data management systems (RDMS).
  • Describe the database development process.
  • Create a conceptual data model including entities, attributes, relationships, key constraints and structural constraints.

Standard 2
Understand Data Definition Language (DDL).
  • Understand what DML is and its role in databases.

Standard 3
Understand Data Manipulation Language (DML).
  • Understand how T-SQL can be used to create database objects such as tables and views.

STRAND 2
The student will understand structured data.

Standard 1
Understand the reasons for normalization.
  • Understand the five most common levels of normalization.
  • Understand how to normalize a database to third normal form.

Standard 2
Understand how data is stored in tables
  • Understand the purpose of tables
  • Describe the structure of a table including columns/fields and records/rows.
  • Understand how to create and modify associations between table rows.

Standard 3
Understand primary, foreign, and composite keys.
  • Understand the reasons for keys in database.
  • Understand choosing appropriate primary keys.
  • Understanding selecting appropriate data types for keys.
  • Understand selecting appropriate fields for composite keys.
  • Understand the relationship between foreign and primary keys.
STRAIGHT 3
The student will create database objects.

Standard 1
Create database tables.
• Create database tables using proper ANSI SQL syntax.
• Define primary keys, foreign keys, unique keys, columns and rows.
• Choose data types and understand why they are important for storage requirements.
• Identify violations of data-integrity rules.

Standard 2
Create views.
• Understand when to use views.
• Create a view for a query using T-SQL or another graphical designer.

Standard 3
Create indexes.
• Understand clustered and non-clustered indexes.
• Add, delete and manage indexes for fast access to table rows and enforcing certain constraints.
• Explain benefits and costs of using indexes.

STRAIGHT 4
The student will manipulate data.

Standard 1
Student will construct simple queries.
• Utilize SELECT statements to extract data from one table.
• Modify the way data is displayed.
• Perform calculations using arithmetic expressions and operators.
• Apply the correct syntax to restrict rows and groups.
• Check for NULL values.

Standard 2
Student will use correct syntax to modify data within a table.
• Understand how data is inserted into the database.
• Utilize INSERT statements to insert data into a table.

Standard 3
Student will use correct syntax to update data within a table.
• Understand how data is updated in a database.
• Utilize UPDATE statements to update data in a table.
**Standard 4**
Student will use correct syntax to delete data within a table.
- Delete data from single or multiple tables.
- Ensure data and referential integrity by using transactions.

**STRAND 5**
The student will construct queries involving one or more tables

**Standard 1**
Understand database security concepts.
- Understand the need to secure a database.
- Understand what objects can be secured.
- Understand what objects should be secured, user accounts, and roles.

**Standard 2**
Understand database backups and restore.
- Understand various backup trips, such as full and incremental.
- Understand importance of backups.
- Understand how to restore a database.

**Performance Skills**
Student will demonstrate skills such as
- Backups and restores (including system databases).
- How to identify poor queries.
- General maintenance (index rebuilds, consistency checks etc.).
- Security and how to manage it.

**Work Place Skills**
Communication, Problem Solving, Teamwork, Critical Thinking, Dependability, Accountability, Legal requirements/expectations