



Western Technical College

## 10154108 Database Concepts

### Course Outcome Summary

#### Course Information

<b>Description</b>	This course gives students an opportunity to learn basic database concepts and design principles. Students can then apply those concepts and principles in hands-on applications. They will master the concept of a relational database application by designing, populating, and joining relational tables using DBMS (database management software).
<b>Career Cluster</b>	Information Technology
<b>Instructional Level</b>	Associate Degree Courses
<b>Total Credits</b>	3
<b>Total Hours</b>	72

#### Textbooks

No textbook required.

#### Success Abilities

1. Live Responsibly: Develop Resilience
2. Live Responsibly: Foster Accountability
3. Refine Professionalism: Act Ethically
4. Refine Professionalism: Improve Critical Thinking
5. Refine Professionalism: Participate Collaboratively
6. Refine Professionalism: Practice Effective Communication

#### Program Outcomes

1. Manage software.
2. Solve information technology problems.

#### Course Competencies

## 1. Examine the purpose of database applications.

### Assessment Strategies

- 1.1. Lab applications
- 1.2. Project

### Criteria

*You will know you are successful when*

- 1.1. you identify the purpose of a database.
- 1.2. you identify the main objects within a database.
- 1.3. you describe the differences between data and information.
- 1.4. you apply database terminology.

### Learning Objectives

- 1.a. Identify types of problems that database applications solve.
- 1.b. Explore objects of a database.
- 1.c. Explore the database interface.
- 1.d. Differentiate between data and information.
- 1.e. Apply database terminology.

## 2. Design a database.

### Assessment Strategies

- 2.1. Lab applications
- 2.2. Project

### Criteria

*You will know you are successful when*

- 2.1. you create a requirements document based on user needs.
- 2.2. you organize database tables based on data.
- 2.3. you normalize the data.
- 2.4. you identify fields and primary and foreign keys.
- 2.5. you create relationships between tables.
- 2.6. you enforce referential integrity.

### Learning Objectives

- 2.a. Analyze database requirements.
- 2.b. Determine tables and fields.
- 2.c. Determine primary key and foreign key.
- 2.d. Identify the purpose of normalization.
- 2.e. Create relationships between tables.
- 2.f. Enforce referential integrity.

## 3. Design tables.

### Assessment Strategies

- 3.1. Lab applications
- 3.2. Project

### Criteria

*You will know you are successful when*

- 3.1. you create a database file.
- 3.2. you create fields and set data types.
- 3.3. you set field properties.
- 3.4. you manage records.
- 3.5. you import data from other applications.
- 3.6. you export data to other applications.

### Learning Objectives

- 3.a. Set field properties.
- 3.b. Manage records in datasheet view.
- 3.c. Find and filter data.

- 3.d. Import data from other applications.
- 3.e. Export data.

#### **4. Use simple queries.**

##### **Assessment Strategies**

- 4.1. Lab applications
- 4.2. Project

##### **Criteria**

*You will know you are successful when*

- 4.1. you create a simple query.
- 4.2. you join tables in a query.
- 4.3. you sort the query results.
- 4.4. you add criteria to a query.
- 4.5. you hide a field in a query.
- 4.6. you run a query.
- 4.7. you interpret query results.
- 4.8. you examine error messages.

##### **Learning Objectives**

- 4.a. Create simple queries.
- 4.b. Join tables in queries.
- 4.c. Sort a query.
- 4.d. Add Criteria to a Query.
- 4.e. Hide a Field in a Query.
- 4.f. Run a query.
- 4.g. Examine error messages.
- 4.h. Interpret query results.

#### **5. Modify queries.**

##### **Assessment Strategies**

- 5.1. Lab applications
- 5.2. Project

##### **Criteria**

*You will know you are successful when*

- 5.1. you use comparison operators in queries.
- 5.2. you use the expression builder.
- 5.3. you use wildcard characters.
- 5.4. you set top values in a query.
- 5.5. you create calculated fields.
- 5.6. you create function queries.
- 5.7. you create parameter queries.
- 5.8. you create concatenation in a query.
- 5.9. you create action queries.
- 5.10. you use advanced query wizards for other purposes.

##### **Learning Objectives**

- 5.a. Use operators in queries.
- 5.b. Use the expression builder.
- 5.c. Use wildcard characters.
- 5.d. Set top values in a query.
- 5.e. Create calculated fields .
- 5.f. Create function queries.
- 5.g. Create parameter queries.
- 5.h. Create concatenation in a query.
- 5.i. Create action queries.
- 5.j. Explore advanced query wizards.

#### **6. Explore Structured Query Language (SQL).**

### **Assessment Strategies**

- 6.1. Lab applications
- 6.2. Project

### **Criteria**

*You will know you are successful when*

- 6.1. you create SQL code.
- 6.2. you run SQL code.
- 6.3. you troubleshoot SQL code.
- 6.4. you resolve errors in the SQL code.

### **Learning Objectives**

- 6.a. Identify reasons for utilizing SQL in a database application.
- 6.b. Explore SQL language statements and syntax.
- 6.c. Practice writing SQL queries.
- 6.d. Write SQL code using SELECT, FROM, WHERE, ORDER BY, AS, AND, OR, and NOT.

## **7. Create forms.**

### **Assessment Strategies**

- 7.1. Lab applications
- 7.2. Project

### **Criteria**

*You will know you are successful when*

- 7.1. you create a form using multiple methods.
- 7.2. you modify form bound and unbound controls.
- 7.3. you manage records using a form.
- 7.4. you print a record from a form.

### **Learning Objectives**

- 7.a. Explore methods of creating forms.
- 7.b. Modify bound and unbound controls.
- 7.c. Manage records in a form.
- 7.d. Print a selected record.

## **8. Use advanced form controls.**

### **Assessment Strategies**

- 8.1. Lab applications
- 8.2. Project

### **Criteria**

*You will know you are successful when*

- 8.1. you create a Combo Box.
- 8.2. you create a List Box.
- 8.3. you create an Option Group.
- 8.4. you add a Logic Control.
- 8.5. you control the tab order.
- 8.6. you add a form header and footer.

### **Learning Objectives**

- 8.a. Create a Combo Box.
- 8.b. Create a List Box.
- 8.c. Create an Option Group.
- 8.d. Add a Logic Control.
- 8.e. Control the tab order.
- 8.f. Add a form header and footer.

## **9. Create reports.**

### **Assessment Strategies**

- 9.1. Lab applications
- 9.2. Project

### **Criteria**

*You will know you are successful when*

- 9.1. you create a report using multiple methods.
- 9.2. you modify report bound and unbound controls.
- 9.3. you group and summarize report data.
- 9.4. you print reports.

### **Learning Objectives**

- 9.a. Explore methods of creating a report.
- 9.b. Modify bound and unbound controls.
- 9.c. Print reports.
- 9.d. Group and summarize report data.

## **10. Use Advanced Report Design.**

### **Assessment Strategies**

- 10.1. Lab applications
- 10.2. Project

### **Criteria**

*You will know you are successful when*

- 10.1. you add report sections.
- 10.2. you create a calculated control.
- 10.3. you create a running summary.
- 10.4. you insert a Date/Time control.
- 10.5. you insert a page break.
- 10.6. you explore page setup properties.
- 10.7. you use the label wizard.

### **Learning Objectives**

- 10.a. Add report sections.
- 10.b. Create a calculated control.
- 10.c. Create a running summary.
- 10.d. Insert a Date/Time control.
- 10.e. Insert a page break.
- 10.f. Explore page setup properties.
- 10.g. Use the label wizard.