OUTCOMES BASED LEARNING MATRIX

Course: CTIM271 – Database Concepts and Practices (3 credits, 60 hours)
Department: Computer Technology and Information Management

Description:
Database software is used to plan, organize, and manage a relational database management system. Students are introduced to structured query language (SQL) as they create, store, sort, and retrieve data. Through a series of hands-on exercises, the student learns how to develop, manage, and reference a database; build various database objects; and write SQL statements that access information from the database.
Two lecture and two laboratory hours per week.

While completing the table below, remember that the individual outcomes you list in the first column should answer this question: **What must the learner know and be able to do at the end of the course?** Items in the third column should answer the question: **How do we know?** The second column is where teachers can be most creative; it's for pedagogy. Each rectangle in column one should contain just one outcome; the corresponding rectangles in columns two and three, however, may contain more than one item. Using the code at the end of the matrix, indicate the core competencies being strengthened by the outcomes activities and the assessment tools.

*COURSE OUTCOMES	OUTCOMES ACTIVITIES	ASSESSMENT TOOLS
At the end of this course, the student will be able to produce tables, queries, forms, and reports using the following features of Access database software: 1. Work with the standard objects of the Access database	1. a. Identify and describe the terminology of Access database software (CCT, IG) b. Use keys, toolbars, menus, and keyboard commands (IG, R) c. Open and close a database and a database table (CCT, IG)	1. Quiz/test on terminology and content (CCT, IG) 2. Demonstration to instructor (CCT, IG) 3. Hands-on application assignments completed in-class and out-of-class (CCT, IG) 4. Hands-on application tests completed in class (CCT, IG)

Approved by CTIM Department: September 2015

	d. Get help and use the office assistant (CCT, IG) e. Save, close, and exit Access (IG)	
2. Create a database	2. a. Create a new database (CCT, IG) b. Create a new table (CCT, IG) c. Save a table design (IG) d. Create a primary key (IG) e. Add, edit, move, and delete fields (IG)	Referenced above
3. Enter and edit data into a database table	3. a. Add, edit, insert, and delete records (CCT, IG) b. Move among records (IG) c. Adjust column widths (IG) d. Hide columns (IG) e. Find and sort records (CCT, IG)	Referenced above
4. Query the database	4. a. Create a new query (CCT, IG) b. Choose fields for a query (CCT, IG) c. Save and edit a query(CCT,IG)	Referenced above

5. Create and use forms	d. Change field order (CCT, IG) e. Sort a query (CCT, IG) f. Match criteria (CCT, IG) g. Save a query with a new name and open multiple queries (CCT, IG)	
	5. a. Create an AutoForm (CCT, IG) b. Enter and edit data using a form (CCT, IG) c. Save, close and open a form (CCT, IG) d. Create new form from scratch (CCT, IG) e. Add fields to forms (CCT, IG) f. Move and resize fields in forms (CCT, IG) g. Add a form header and label (CCT, IG)	Referenced above
6. Create and print reports		
	6. a. Print table data (CCT, IG) b. Create a report using wizards (CCT, IG) c. Print and rename a report (CCT, IG) d. Modify a report design (CCT,	Referenced above

7. Customize fields and tables	IG) e. Save a report with a new name (CCT, IG) f. Add labels to reports (CCT, IG) 7. a. Modify a table design (CCT, IG) b. Enter a default value (CCT, IG) c. Change a field type and select a format (CCT, IG) d. Change a field size (CCT, IG) e. Work with more than one table (CCT, IG) f. Create table relationships (CCT, IG) g. Create a multiple-table query (CCT, IG)	Referenced above

8. Integrate Access with other sources of data	8. a. Convert a database from a previous version of Access (CCT, IG) b. Link an Access table to a form letter in Word and merge it (CCT, IG) c. Import a table from Excel (CCT, IG) d. Save a form as a data access page (CCT, IG) e. Use a browser to interact with the database (CCT, IG)	Referenced above
9. Make data entry easier and more accurate	9. a. Create consistent data formats (CCT, IG) b. Create conditional formats for positive, negative, and null values (CCT, IG) c. Change the data input structure using input masks (CCT, IG) d. Restrict entries to those that meet validation criteria (CCT, IG) e. Require entry of necessary information (CCT, IG) f. Prevent duplicate entries	Referenced above

	using indexed fields (CCT, IG) g. Create a lookup column to allow selection from a list (CCT, IG)	
10. Manage data using smaller, related tables	10. a. Design related tables to hold repetitive data (CCT, IG) b. Define the relationship between tables (CCT, IG) c. Create queries that draw data from both tables (CCT, IG) d. Automatically fill in data from one of the joined tables (CCT, IG) e. Update tables by entering or deleting data in a query (CCT, IG) f. Find duplicate records in an existing table (CCT, IG)	Referenced above
11. Add useful features to forms	11. a. Add formats in form design view (CCT, IG) b. Select entries from a list (CCT, IG) c. Look up valid entries from a	Referenced above

12. Create special-purpose reports	table or query (CCT, IG) d. Use information from a query to fill in fields automatically (CCT, IG) e. Enter the current date in a field automatically (CCT, IG) f. Add the current date and time to a form automatically (CCT, IG) g. Change the tab order (CCT, IG) h. Create subforms (CCT, IG) i. Print the form for filing purposes (CCT, IG) 12. a. Create labels for mailing (CCT, IG) b. Create calculated fields in a report (CCT, IG) c. Group and sort data in a report (CCT, IG) d. Keep grouped data together in a report (CCT, IG) e. Add calculated fields to group headers and footers (CCT, IG) 13.	Referenced above

13. Manage databases with special action queries and database utilities	a. Make backup copies of data (CCT, IG) b. Save a database in a lower version (CCT, IG) c. Compact and repair files for efficient storage (CCT, IG) d. Use detect and repair to fix problems (CCT, IG) e. Generate a query that creates an archive table (CCT, IG) f. Modify the archive setup query to delete records from a table (CCT, IG) g. Crete a query to append records to an archive table (CCT, IG) h. Create a macro to run two queries (CCT, IG)	Referenced above
14. Use Access on the Web and link to other documents	14. a. Add hyperlinks from forms to Word and Excel documents (CCT, IG) b. Save database objects as HTML pages (CCT, IG)	Referenced above

15. Perform essential MySQL competencies	15. a. Write queries in SQL (CCT, IG) b. Create and update SQL databases and tables (CCT, IG) c. Use MySQL built-in functions (CCT, IG) d. Sort and filter records with SQL (CCT, IG) e. Update tables with triggers (CCT, IG) f. Word with subselects and Views (CCT, IG) g. Create and use stored Functions (CCT, IG)	Referenced above
16. Query Microsoft SQL Server	16. a. Write SELECCT queries (CCT, IG) b. Query multiple tables (CCT, IG) c. Filer text and duplicates (CCT, IG) d. Sort and group query results (CCT, IG) e. Use SQL Server's built-in functions (CCT, IG) f. Write subqueries (CCT, IG)	Referenced above

17. Understand relational database concepts	g. Use common table expressions (CCT, IG) h. Interpret query performance data (CCT, IG) 17. a. Define a database management system (CCT, IG) b. Move through the database development cycle (CCT, IG) c. Gather requirements for the system (CCT, IG) d. Develop relationships among objects (CCT, IG) e. Identify key fields (CCT, IG) f. Follow naming conventions (CCT, IG) g. Develop the actual database (CCT, IG)	Referenced above
To strengthen Core Competencies** in order to increase success in this and other courses and in the workplace.	Referenced above	Referenced above.

*Try to express an outcome as an infinitive phrase that concludes this sentence: **At the end of the course, the students should be able to . . ..** Finding the line between too general and too specific can be difficult. In an English Composition course, for instance, it is probably too general to say, "The student should be able to write effective essays." It is probably too specific to say, "The student should be able to write an introductory

paragraph of at least 50 words, containing an attention-getting device, an announcement of the narrowed topic, and an explicit thesis sentence." Just right might read, "The student will write introductions that gather attention and focus the essay."

** Indicate the Core Competencies that apply to the outcomes activities and assessment tools: critical and creative thinking (CCT); oral communications (OC); quantitative literacy (QL); information literacy (IL); written communication (WC); civic engagement (CE); integrative learning (IG); global learning (GL).