

# Minnesota State College Southeast

## COMC 2747: Database Application Development

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 2

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course introduces database application programming techniques for web-based clients. Topics include: application architecture, C# language, ADO framework (connections, commands, data readers, data adapters, data sets, etc.), .Net Core MVC, domain models, code-first database implementation, controllers, routing, action methods/parameters, views, user interface design & implementation, multiuser concepts, lambda expressions, Entity Data Model, retrieving/updating data using LINQ to Entities. (Prerequisite: COMC2722) (Prerequisite or concurrent: COMC2742, or instructor permission) (4 credits: 3 lecture/1 lab)

**B. COURSE EFFECTIVE DATES:** 01/16/2002 - Present

**C. OUTLINE OF MAJOR CONTENT AREAS**

#### **D. LEARNING OUTCOMES (General)**

1. Describe multi-tiered database application concepts
2. Describe application partitioning concepts
3. Use Connection object properties/methods
4. Use Command object properties/methods
5. Use DataSet object properties/methods
6. Use DataAdapter object properties/methods
7. Use DataTable object properties/methods
8. Use DataReader navigation methods
9. Create MVC model classes
10. Create MVC controllers
11. Create action methods
12. Use action method parameters
13. Implement DbContext classes
14. Create MVC views
15. Bind view elements to entities
16. Perform code-first database development
17. Use model class property annotations
18. Initialize database tables with test data
19. Perform database structure migrations
20. Perform record updates
21. Perform record insertions
22. Perform record deletions
23. Create record insert/update/delete application
24. Determine application server functionality
25. Determine database server functionality
26. Determine web client functionality
27. Create exception-handling code
28. Create domain classes
29. Describe multi-user, network database application concepts
30. Perform record update error handling
31. Perform record deletion error handling
32. Describe user interface design concepts
33. Load data into select controls
34. Create Entity Data Model (EDM)
35. Retrieve data using LINQ to Entities
36. Perform updates using LINQ to Entities
37. Use lambda expressions
38. Create Web Forms applications
39. Display professional attitude

#### **E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

This course was previously titled Database Applications Programming