COMC 2740: Introduction to Java / C / C++ Programming

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 2

OJT Hours/Week: *.*

Prerequisites:
This course requires the following prerequisite
   COMC 1730 - Introduction to Programming with .Net

Corequisites: None

MnTC Goals: None

This is the first in a series of courses on programming in Java, C, C++, and C# languages. Topics include:
Java/C/C++/C# program structure, data types, control structures, functions, parameters, scope, unit testing,
class definitions, methods, fields (instance variables), loops, input-output, arrays, iteration, pointers, and
IoT devices. (Prerequisite: COMC1730 or instructor permission) (3 credits: 2 lecture/1 lab)

B. COURSE EFFECTIVE DATES: 05/21/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Data types, variables, type conversion
2. Expressions, operators
3. Control structures, parameters
4. Objects, attributes, methods, reference variables, pointers
D. LEARNING OUTCOMES (General)

1. Distinguish Java, C, C++, and C#
2. Use programming IDE
3. Describe Java and/or C program structure
4. Select appropriate variable type
5. Use assignment operators
6. Use math operators
7. Describe automatic type conversions
8. Perform type casting
9. Distinguish character strings and arrays
10. Use appropriate import/include directives
11. Use #define directive
12. Use input/output functions
13. Use input-output format specificiers
14. Create functions
15. Pass parameters by reference
16. Perform unit testing
17. Define classes and objects
18. Define fields (instance variables) and methods
19. Create GUI (FXML form) applications
20. Perform GUI (FXML form) input / output
21. Use relational operators
22. Use if statement
23. Use if-else statement
24. Use logical operators
25. Use nested if-else statements
26. Use while loop
27. Use do-while loop
28. Use exit command
29. Use break command
30. Use for loop
31. Use nested loops
32. Use continue statement
33. Use switch statement
34. Perform file input / output
35. Perform http input/output
36. Declare/initilize arrays
37. Use arrays
38. Declare pointer variables
39. Use address-of operator
40. Use pointer dereference (value-of) operator
41. Use pointer arithmetic
42. 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
   None noted