

# Minnesota State College Southeast

## 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: None

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**

## **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 specifiers
14. Create functions
15. Choose appropriate variable scope
16. Pass parameters by value
17. Pass parameters by reference
18. Use static variables & methods
19. Use function return values
20. Use math functions
21. Perform unit testing
22. Define classes and objects
23. Define fields (instance variables) and methods
24. Perform Swing GUI input/output
25. Use relational operators
26. Use if statement
27. Use if-else statement
28. Use logical operators
29. Use nested if-else statements
30. Use while loop
31. Use do-while loop
32. Use exit command
33. Use break command
34. Use for loop
35. Use nested loops
36. Use continue statement
37. Use switch statement
38. Perform file input / output
39. Perform http input/output
40. Declare/initialize arrays
41. Use arrays
42. Declare pointer variables
43. Use address-of operator
44. Use pointer dereference (value-of) operator

- 45. Use pointer arithmetic
- 46. 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