Course Information

Course Title	Programming Fundamental III
Course Prefix, Num. and Title	COSC 2436 - Programming Fundamental III
Division	Technology and Business
Department	Computer Science
Course Type	Academic General Education Course (from ACGM, but not WCJC Core)
Course Catalog Description	Further application of programming techniques, introducing the fundamental concepts of data structure and algorithms using C++ in Visual Studio.NET environment Topics include recursion, fundamental data structure (including stacks, queues, link lists, hash tables, trees, and graphs), and algorithmic analysis.
Pre-Requisites	COSC 1437
Co-Requisites	None

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours: Lab/Other Hours	4:3:2
Equated Pay Hours	4
Lab/Other Hours Breakdown: Lab Hours	2
Lab/Other Hours Breakdown: Clinical Hours	0
Lab/Other Hours Breakdown: Practicum Hours	0
Other Hours Breakdown	0

Approval Signatures

Title	Signature	Date
Prepared by:		
Department Head:		
Division Chair:		
Dean/VPI:		
Approved by CIR:		

Additional Course Information

Topical Outline: Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, and clinical or other non-lecture instruction).

Topics Covered:
Review variable, input / output, control structure, user define function, arrays, class, string
Software Engineering Principles and Classes
Object-Oriented Design
Pointers and Array-Based lists
Standard Template Library
Link Lists
Recursion
Stacks
Queues
Search Algorithms and Sort algorithms
Binary Trees
Graphs

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:
Advanced data structures and algorithms using Java

Methods of Assessment:
Standardized course projects graded via rubric

Required text(s), optional text(s) and/or materials to be supplied by the student:

Y. Daniel Liang, Introduction to JAVA Programming, Seven Edition, Pearson / Prentice Hall, ISBN # 10: 0-13-601267-1

Suggested Course Maximum:

20

List any specific or physical requirements beyond a typical classroom required to teach the course.

Computer for each student with appropriate Java compiler.

Course Requirements/Grading System: Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course.

Tests and Comprehensive Final Exam (partial multiple choice, fill in the blank, etc. with a hands-on component) weekly
Short Answer and Hands-on Lab Assignments
50% - Labs, Projects
50% - Midterm & Final Exam

Curriculum Checklist:

☒ **Administrative General Education Course** (from ACGM, but not in WCJC Core) – No additional documents needed.
☐ **Administrative WCJC Core Course**. Attach the Core Curriculum Review Forms
    ☐ Critical Thinking

- [ ] Communication
- [ ] Empirical & Quantitative Skills
- [ ] Teamwork
- [ ] Social Responsibility
- [ ] Personal Responsibility
- [ ] **WECM Course** -If needed, revise the Program SCANS Matrix and Competencies Checklist