



Course Information

Course Title	Programming Fundamental I
Course Prefix, Num. and Title	COSC 1436 - Programming Fundamental I
Division	Technology and Business
Department	Computer Science
Course Type	Academic General Education Course (from ACGM, but not WCJC Core)
Course Catalog Description	This course introduces the fundamental concepts of structured programming using Java, and provides a comprehensive introduction to programming for computer science and technology majors. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging. This course assumes computer literacy. This course is included in the Field of Study Curriculum for Computer Science.
Pre-Requisites	TSI Math and Reading
Co-Requisites	None

Semester Credit Hours

Total Semester Credit Hours (SCH): Lecture Hours:	4:3:2
Lab/Other Hours	
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).

- **Introduction to Computers and Java,** Computer Hardware and software, Programming Languages, The Programming Process
- **Java Fundamentals:** Data Type, Arithmetic operations, Variables declarations, print and println methods, Reading keyboard input using Scanner Class and input dialog box, and String class.
- **Decision Structure:** if statements, switch Statements, logical Operators, Comparing String Objects, and the printf Method.
- **Loops and files:** while Loop, do-while Loop, for loop, nested loop, Random class, and introduction to file input and output.
- **Methods:** defining and calling a method, passing arguments to a method, passing object references to a method, returning a value from a method, and Local variable.
- **Classes:** classes and objects, instance fields and methods, constructors, overloading methods and constructors, and packages and import Statements.
- **GUI Applications:** AWT and Swing, creating Windows, Layout Managers, Labels, Text boxes Button, Radio Buttons, check Boxes, and Borders
- **Arrays:** Declaring and initializing an array, passing and returning an array to/from method, string array, Arrays of Objects, two dimensional arrays, Multidimensional arrays.

Course Learning Outcomes:

Learning Outcomes – Upon successful completion of this course, students will:

1. Describe how data are represented, manipulated, and stored in a computer.
2. Categorize different programming languages and their uses.
3. Understand and use the fundamental concepts of data types, structured programming, algorithmic design, and user interface design.
4. Demonstrate a fundamental understanding of software development methodologies, including modular design, pseudo code, flowcharting, structure charts, data types, control structures, functions, and arrays.
5. Develop projects that utilize logical algorithms from specifications and requirements statements.
6. Demonstrate appropriate design, coding, testing, and documenting of computer programs that implement project specifications and requirements.
7. Apply computer programming concepts to new problems or situations.

Methods of Assessment:

All outcomes will be assessed by one or more of the following:

Individual Programming Projects
Tests and Quizzes
Final Exam

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

Tony Gaddis, Starting out with Java From Control Structures Through Data Structure, second Edition, Addison Wesley, ISBN # 10: 0-13-54586-9

USB Storage Drive

High-speed Internet Connection

Suggested Course Maximum:

20

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

Computer for each student with jdk-7 and JGRASP

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

50% - Labs, Projects

50% - Midterm & Final Exam

Grading System:

100-90 = A

89-80 = B

79-70 = C

69-60 = D

and below = F

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