Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Programming Fundamentals I
Course Prefix, Num. and Title	COSC 1436 Programming Fundamentals 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 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.
Pre-Requisites	TSI ELAR (Reading and Writing) and Math requirements met
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
Department Head:	Muna Saqer, Comp Sci and IT&N Program Director	10-26-2023
Division Chair:	David Kucera, Technology & Business Division	10-26-2023
VPI:	Leigh Ann Collins Digitally signed by Leigh Ann Collins Date: 2024.05.21 09:54:16 -05'00'	

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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).

The following topics are introduced to the student in a lecture/lab setting:

- **Introduction to Computers:** Computer Hardware and software, Programming Languages, The Programming Process
- **Fundamentals:** Data Type, Arithmetic operations, Variables declarations, print methods, reading keyboard input, and String class.
- **Decision Structure:** if statements, switch Statements, logical Operators, Comparing String Objects, and the print Method.
- **Loops and Files:** while Loop, do-while Loop, for loop, nested loop, Random class, and introduction to file input and output.
- **Methods and Functions:** 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.
- **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:

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

Starting Out with Java from Control Structures through Objects, Tony Gaddis, Published by Pearson (Latest Edition)
Revel Access Code for Introduction to Java Programming and Data Structures, Thirteen Edition, Y. Daniel Liang. Published by Pearson (Latest Edition)

Suggested Course Maximum:

20

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List any specific or physical requirements beyond a typical classroom required to teach the course.
Computer for each student with appropriate 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

Lab and/or Projects 40-60%
Quizzes and/or Exams 40-60%

Grade System:
90-100%..... =A
80-89%..... =B
70-79%..... =C
60-69%..... =D
Below 60%..... =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