Wharton County Junior College

Administrative Master Syllabus

Course Information

Course Title	Programming Fundamentals II
Course Prefix, Num. and Title	COSC 1437 Programming Fundamentals II
Division	Technology and Business
Department:	Computer Science
Course Type	Academic General Education Course (from ACGM, but not WCJC Core)
Course Catalog Description	This course focuses on the object-oriented programming paradigm, emphasizing the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering processes. Students will apply techniques for testing and debugging software.
Pre-Requisites	COSC 1436
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 09:56:27 -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 main purpose of this course is to provide students with comprehensive understanding of programming concepts and techniques, to develop the ability to logically plan and develop programs, to learn to use object-oriented programming and design, and to learn to write, test, and debug programs. Students will be introduced to the following in lecture/lab:

- File and IO operation Selection
- Repetition Methods
- User-Defined Simple Data Types
- Arrays
- Strings
- Classes
- Data Abstraction and Encapsulation
- Use UML to describe classes and objects
- Inheritance and Polymorphism
- Exception Handling
- Creating User Interface
- Applets and Multimedia
- Students will have an opportunity to apply their knowledge through hands-on programs and exercises and case study assignments

Course Learning Outcomes:

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

- Identify and explain a programming development lifecycle, including planning, analysis, design, development, and maintenance.
- Demonstrate a basic understanding of object-oriented programming by using structs and classes in software projects.
- Use object-oriented programming techniques to develop executable programs that include elements such as inheritance and polymorphism.
- Document and format code in a consistent manner.
- Apply basic searching and sorting algorithms in software design.
- Apply single- and multi-dimensional arrays in software.
- Use a symbolic debugger to find and fix runtime and logical errors in software.
- Demonstrate a basic understanding of programming methodologies, including object-oriented, structured, and procedural programming.
- Describe the phases of program translation from source code to executable code.

Methods of Assessment: All outcomes will be assessed by one or more of the following:
Labs Tests and Quizzes
Final Exam
Programming Projects

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

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

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