

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: ITP 100

Credits: 3

Course Title: Software Design

Course Description: Introduces principles and practices of software development. Includes instruction in critical thinking, problem solving skills, and essential programming logic in structured and object-oriented design using contemporary tools. Lecture 3 hours per week.

General Course Purpose: This course teaches students how to design software using both structured programming and object-oriented programming concepts. Students will use pseudocode, flowcharts, design tools and UML. A specific programming language will NOT be used in this course.

Course Prerequisites and Co-requisites:

None

Student Learning Outcomes:

Upon completing the course, the student will be able to

- a. Identify programming terminology and basic mechanics of programming;
- b. Describe the structured design building blocks applied within programming solutions;
- c. Illustrate structured design using an appropriate notational language (pseudocode, flowcharts);
- d. Design the core concepts of object-oriented design;
- e. Understand and design an event driven GUI programming application; and
- f. Understand system modeling using Unified Modeling Language (UML).

Major Topics to Be Included:

- a. Introduction to Computers and Programming
- b. Decision Structures
- c. Repetition Structures
- d. Arrays
- e. File Handling
- f. Modulation Techniques
- g. Object-Oriented Programming
- h. GUI Applications
- i. Unified Modeling Language (UML)

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