

**AUSTIN COMMUNITY COLLEGE
CONTINUING EDUCATION**

Introduction to Programming Languages

(16 hours)

ITSE 1003

COURSE SYLLABUS

Course Description: Development of basic knowledge of programming concepts and techniques. Topics include familiarization with and utilization of computer systems; developing logic; preparing top-down design of problems; and creating programs. This class is for those who have few or no skills in programming. Emphasis will be placed on problem definition, program solution, and how to enter, manipulate, and display data. Using Qbasic as a teaching vehicle, this course will expose students to the basic programming concepts they need for further work with programming languages. Prerequisites: End-user familiarity with computers, the Internet, Microsoft Windows.

Objectives: Every student will be able to:

- Identify the components of a computer system.
- Explain the difference between a compiler and an interpreter.
- Identify the three components of structured programming.
- Demonstrate the understanding of Software Engineering Principles
- Demonstrate the ability to use the Qbasic editor.
- Develop pseudocode which describes a computer program.
- Develop flowcharts that describe a computer program.
- Create Qbasic programs given the program requirements.
- Analyze sorting algorithms.
- Demonstrate understanding of the use of subroutines.
- Analyze searching algorithms.

Required Material: “Teach Yourself Beginning Programming in 24 Hours”, by Greg Perry, ISBN: 0-672-31355-3.

Type of Course: Short Course

Evaluation: Students will be evaluated on their competency in performing a variety of hands-on exercises created to insure the student has achieved all course objectives throughout the course, and class participation. In order to grant CEU credit for a course the students must be able to complete assessment exercises for each part of the course given by the instructor. The instructor will validate each participant’s achievement of the course objectives by signing and awarding individual certificates of completion.

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Course Outline:

<u>Topic</u>	<u>Sub-topic</u>	<u># hours</u>
Computer Programming Defined	Computer Systems	.5
	Hardware	
	Operating Systems	
	Interpreters	
	Compilers	
Program Design Fundamentals	Software Engineering	1
	Requirements Docs.	
	Software Life Cycle	
	Top-down Design	
	Flowcharting	
	Pseudocode	
Programming in Qbasic I	Installing Qbasic	1.5
	Using the editor	
	Variables	
	Program examples	
Programming in Qbasic II	Advanced Printing	1.5
	Input Statements	
	Using the Printer	
	Strings and Ints	
	Using Clause	
Programming in Qbasic III	Data Processing	1.5
	If Statements	
	Select Case Statement	
	Looping	
Programming in Qbasic IV	Arrays	1.5
	Writing to Disk Files	
	Records and Fields	
	Reading From a File	
Graphics in Qbasic	Using the Speaker	1.5

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	The Sound Command	
	The Play Command	
	Pixels	
	Drawing Lines	
Computer Algorithms	Counters	2.5
	Value Swapping	
	Sorting	
	Sorting Flowcharts	
	Sorting Pseudocode	
	Searching	
	Searching Flowcharts	
	Searching Pseudocode	
	Program Exercises	
	Subroutines	
	Nested Loops	
Final Exam		.5

Student Assessment Checklist:

At the completion of the course each student will be able to:

1. Identify the components of a computer system.
2. Explain the difference between a compiler and an interpreter.
3. Identify the three components of structured programming.
4. Demonstrate the understanding of Software Engineering Principles
5. Demonstrate the ability to use the Qbasic editor.
6. Develop pseudocode which describes a computer program.
7. Develop flowcharts that describe a computer program.
8. Create Qbasic programs given the program requirements.
9. Analyze sorting algorithms.
10. Demonstrate understanding of the use of subroutines.
11. Analyze searching algorithms.