Virginia Western Community College
CSC 205
Computer Organization

Prerequisites
none

Course Description
Examines the hierarchical structure of computer logic and architecture. Focuses on multi-level machine processing organization. Uses a simple assembler language, Linux scripting, and C languages to complete programming projects. Includes processors, instruction, execution, addressing techniques, data representation and digital logic.

Semester Credits: 4   Lecture Hours: 4   Lab/Clinical/Internship Hours: 0

Required Materials

Textbook:
"C Programming a Modern Approach", 2nd Edition, K.N.King, WW Norton 2008, ISBN-13: 978-039-3979503

A Practical Guide to Linux Command, Editors and Shell Programming/Sobell/3rd edition/9780133085044

Other Required Materials:
Internet with access to Blackboard.

Course Outcomes

At the completion of this course, the student should be able to:

- design combinational and sequential programs that realize different aspects of a digital computer, including arithmetic/logic circuits and the control units
- understand the representation of information in both binary, assembly, and code formats
- understand the different layers of abstraction in a computing system, i.e., logic design, computer architecture, machine language, assembly language, high level language
- write simple to moderately complex programs in C
- read and understand simple programs in x86 assembly language.

Topical Description

Week	Topic
1	Course Policies and Overview QA
2	Linux: basic commands and utilities
3	Linux: access permissions, more commands, editing text files, shell configuration
4	Linux Regular Expressions and Coding in Bash
5	C: Introduction to the C Language and (Hello World!), Variables and Types, Static Variables
6	Arrays and Multidimensional Arrays, Strings, Loops, Pointers
7	Pointers
8	Structures
9	Functions, Function arguments by reference, Function pointers
10	Recursion, Linked lists, Binary trees
11	Unions
12	x86 assembly Introduction
13	x86 assembly Logic
14	x86 assembly Programming
15	Summary and Questions

Notes to Instructors

- none

Virginia Western Community College   **3097 Colonial Ave SW**
School of Science, Technology, Engineering, and Math   **Roanoke, VA 24015**
(540) 857-7273