CSC 201  Introduction to Information Technology

CREDIT HOURS: 3

PREREQUISITES: CSC 102

GRADE REMINDER: Must have a grade of C or better in each prerequisite course.

CATALOG DESCRIPTION

Introduction to the field of Information Technology including the hardware, software, and networking concepts required to understand the modern computing and communications world. Use scripting languages available on current operating systems and in the Internet environment.

PURPOSE OF COURSE

To familiarize the student with a broad high level understanding of how computer hardware, software, networks, and systems operate. Topics will include discussion of how computers operate; how the Internet and the World Wide Web operate; and how all of these affect security, privacy, property and other issues. It will also touch on fundamental ideas from computer science, and some of the inherent limitations of computers. The Bash shell and the Javascript language will be use to as an introduction to interpreted languages.

EDUCATIONAL OBJECTIVES

1. To describe how digital systems work.
2. To be able to identify and explain the parts of a computer system.
3. To be able to demonstrate an understanding of how computers store and manipulate information. Identify the storage media appropriate for specific tasks.
4. To be able to explain what the von Neumann architecture is and its significance.
5. To identify the role and functions of an operating system.
6. To be able to use system utility programs to identify running processes and their memory usage and for routine maintenance operations.
7. To be able to use system utility programs to perform file management functions such as creating, copying, deleting, and moving files and folders. Also be able to perform these tasks at the command prompt.
8. To be able to discuss basic networking concepts, identify by use and description network cables and devices, setup a peer to peer network or shared Internet connection, and explain the layers of the OSI model and their functions.
9. To be able to demonstrate the use of a scripting language to manipulate data on a single computer system and over the network.
10. To be able to explain how the client-server model of Internet programming works.
11. Be able to create simple web pages using a text editor, using HTML standards. Also be able to use scripting to create interactive web pages.
12. To be able to explain daily tasks for a variety of Information Technology careers.

STUDENT LEARNING OUTCOMES

By the end of this course:
- Students will understand the components of a contemporary computer and know how to assemble them from components.
- Students will be able to execute basic commands to manage computers running Microsoft Windows and Unix/Linux/OS X.
- Students will be able to convert between binary, decimal and hexadecimal representations, and understand where these representations are necessary in dealing with data and commands.
- Students will be able to explain basic concepts of networking, and give examples of the functions at each layer in the OSI model.
- Students will understand the concept of information and how information is stored, utilized and secured within the context of information technology.
- Students will be able to read and discuss current articles in the professional IT press dealing with trends in IT infrastructure and its context.
- Students will be able to understand and differentiate between the available career paths in Information Technology.

CONTENT

Week 1  Introduction to Information Technology, Computer Assembly
Week 2  Computer Organization
Week 3  Binary Numbering System and Data Storage Concepts
Week 4  Introduction to Operating Systems Concepts
Week 5  Files, Directories and the File System, User management
Week 6  Processes and Services
Week 7  Introduction to Client-Side Scripting – Bash/Powershell Shell
Week 8  Regular expressions and file search tools
Week 9  Networking and the Internet (OSI Model)
Week 10 Network configuration & network software tools
Week 11 Shell scripting (Programming Part 1)
Week 12 Shell scripting (Programming Part 2)
Week 13 Introduction to Markup Languages (HTML, XML, Unix configuration)
Week 14 Introduction to Client-Side Scripting – Javascript
Week 15 IT careers, Ethics, Organizational Impact

TEXTBOOK

REFERENCE


