

## Computer Science 1301 – Computer Literacy

### Student Learning Outcomes

Upon completion of **CS 1301**, students will be able to:

1. identify basic computer concepts, such as what a computer is, how it works, and what makes it a powerful tool.
2. demonstrate ability to access the Internet, the World Wide Web, web browsers, e-mail, FTP, and instant messaging.
3. demonstrate use of a variety of business software, graphics, multimedia software, home/personal/educational Software, and communications software.
4. identify the components of the system unit, memory, and instruction execution.
5. describe various techniques of input, output, and digital storage and list commonly used input, output, and storage devices.
6. differentiate among a variety of stand-alone operating systems, network operating systems, and embedded operating systems.
7. summarize the current state of communications technology and associated applications.
8. describe computer and Internet risks, ethical issues surrounding information accuracy, intellectual property right, codes of conduct, information privacy, and computer-related health issues.
9. discuss the system development cycle and the program development cycle.
10. summarize the special computing requirements used in an enterprise-sized organization and outline types of computer-related careers, career development, and certification.

### Course Content

**Textbook:** *Discovering Computers 2011*, by Gary B. Shelly and Misty E. Vermaat.

The following chapters including the particular sections listed are covered. (See textbook “Contents”)

#### 1. Introduction to Computers

- World of Computers
- What is a Computer?
- The Components of a Computer
- Advantages and Disadvantages of Using Computers
- Networks and the Internet
- Computer Software
- Categories of Computers
- Personal Computers
- Mobile Computers and Mobile Devices
- Game Consoles
- Servers
- Mainframes
- Supercomputers
- Embedded Computers

Elements of an Information System

Examples of Computer Usage

Computer Applications in Society

## **2. The Internet and the World Wide Web**

The Internet

Evolution of the Internet

The World Wide Web

E-Commerce

Other Internet Services

Netiquette

## **3. Application Software**

Application Software

Business Software

Graphics and Multimedia Software

Software for Home, Personal, and Educational Use

Web Applications

Application Software for Communications

Learning Tools for Application Software

## **4. The Components of the System Unit**

The System Unit

Processor

Data Representation

Memory

Expansion Slots and Adapter Cards

Ports and Connectors

Buses

Bays

Power Supply

Keeping Your Computer or Mobile Device Clean

## **5. Input**

What is Input?

What are Input Devices?

The Keyboard

Pointing Devices

Mouse

Other Pointing Devices

Game Controllers

Digital Cameras

Voice Input

Video Input

Scanners and Reading Devices

Biometric Input

Terminals

Input Devices for Physically Challenged Users

## **6. Output**

What is Output?

Display Devices

Printers

Speakers, Headphones, and Earbuds

Other Output Devices

Output Devices for Physically Challenged Users

## **7. Storage**

Storage

Hard Disks

Flash Memory Storage

Cloud Storage

Optical Disks

Other Types of Storage

## **8. Operating Systems and Utility Programs**

System Software

Operating Systems

Operating System Functions

Types of Operating Systems

Stand-Alone Operating Systems

Server Operating Systems

Embedded Operating Systems

Utility Programs

## **9. Communications and Networks**

Communications

Uses of Computer Communications

Networks

Network Communications Standards

Communications Software

Communications Over the Telephone Network

Communications Devices

Home Networks

Communications Channel

Physical Transmission Media

Wireless Transmission Media

## **10. Database Management**

Databases, Data and Information

The Hierarchy of Data

Maintaining Data

File Processing Versus Databases

Database Management Systems

Relational, Object-Oriented, and Multidimensional Databases

Web Databases

Database Administration

## **11. Computer Security, Ethics, and Privacy**

Computer Security Risks

Internet and Network Attacks

Unauthorized Access and Use

Hardware Theft and Vandalism

Software Theft

Information Theft

System Failure

Backing Up – the Ultimate Safeguard

Wireless Security

Health Concerns of Computer Use

Ethics and Society

Information Privacy

**Special section – Digital Forensics**

## **12. Information System Development**

What is System Development

What Initiates the System Development Project?

Planning Phase

Analysis Phase

Design Phase

Implementation Phase

Operation, Support, and Security Phase

## **13. Programming Languages and Program Development**

Computer Programs and Programming Languages

Low-Level Languages

Procedural Languages

Object-Oriented Programming Languages and Program Development Tools

Other Programming Languages and Development Tools

Web Page Development

Multimedia Program Development

Program Development

Step 1 – Analyze Requirements

Step 2 – Design Solution

Step 3 – Validate Design

Step 4 – Implement Design

Step 5 – Test Solution

Step 6 – Document Solution

## **14. Enterprise Computing**

What is Enterprise Computing?

Information Systems in the Enterprise

Enterprise-Wide Technologies and Methodologies

Virtualization and Cloud Computing

E-Commerce

Enterprise Hardware

High-Availability, Scalability, and Interoperability

Backup Procedures

## **15. Computer Careers and Certification**

The Computer Industry

Careers in the Computer Industry

Preparing for a Career in the Computer Industry

Certification

A Guide to Certification