

Multitech Business School
INTRODUCTION TO COMPUTER APPLICATIONS AND CONCEPTS

Course Description

Covers computer concepts and internet skills, and uses a software suite which includes word processing, spreadsheet, database, and presentation software to demonstrate skills. Recommended prerequisite keyboarding skills. Lecture 3 hours per week.

General Course Purpose

This course provides a foundation in information technology concepts, operating system functions and computer applications. The course also includes topics in computer ethics, computer security and HTML (Creating a Website). This course can be used to meet the College's general education information literacy goals and as a general elective in any program that the college offers.

Course Prerequisites/Corequisites

None

Course Objectives

Upon completing the course, the student will be able to:

- a) Identify and discuss the four main functions of computer hardware: input, processing, output, and storage.
- b) Identify and describe major hardware components.
- c) Identify major steps in the historical development of computers and information systems
- d) Identify, describe and use communications and networking terminology and technology to include Internet operations and its uses
- e) Describe the major operating system functions and demonstrate usage of operating system services to include: disk management, file management, and memory management
- f) Identify and discuss computer ethics and security issues
- g) Demonstrate searching, validation, and evaluation of information found online and in library databases
- h) Identify, discuss and use important categories of application software: word processing, spreadsheet, database management, and presentation graphics
- i) Identify and discuss software development processes and programming languages
- j) Create a Web site with HTML tags and post to a Web server
- k) Identify and discuss emerging technologies (optional)

Major Topics to be Included

- a) Computer Hardware
- b) Communications Technology
- c) Operating Systems
- d) Ethics and Security
- e) Information Literacy
- f) Productivity Tools

- g) Web Authoring and Publishing
- h) Software Development
- i) Emerging Technologies (optional)

Student Learning Outcomes

Computer Hardware

Input/Output

- a) Define the term hardware
- b) Describe the different monitor and resolution types
- c) Describe the use of the keyboard and other input devices
- d) Describe various pointing devices (mouse, joystick, touchpad, stylus, or other)
- e) Discuss different print technologies
- f) Discuss the function of hardware ports (relevant legacy ports such as serial, parallel, firewire) popular and latest ports being used on various platforms for video, audio, and general data (such as USB, Thunderbolt, and HDMI)
- g) Define CPU operations

Processing

- a) Define the term CPU
- b) Discuss the function of the motherboard
- c) Discuss the processing speed/system clock
- d) Discuss the function of the bus

Storage

- a) Differentiate between the different types of storage (primary and secondary)
- b) Describe types of storage (dynamic and persistent)
- c) Define cloud storage and discuss its advantages and disadvantages
- d) Describe the data storage hierarchy (Bits, Bytes, Kilobytes, Megabytes, Gigabytes, and Terabytes)

Communications Technologies

- e) Describe LANS, WANS, and the Internet vs Intranet
- f) Discuss Wireless VOIP, Broadband, cable, GPS, Bluetooth, and other relevant networks.
- g) Define Client/Server and other architectures
- h) Define the following terms and use the capabilities within the Internet - World Wide Web, Uniform Resource Locator, Domain Names, File Transfer, common Protocols, ISPs, and Web Hosting
- i) Explain the operations of Web servers and browsers and compare various browsers
- j) Explain how to evaluate a Web site for relevancy, bias and credibility
- k) Discuss how Web 2.0 technologies such as blogs, wikis, RSS feeds, and podcasting can be used to communicate and collaborate
- l) Discuss social media sites and their advantages and disadvantages

Operating Systems

- a) Define the term operating system and discuss major operating system functions.
- b) Compare and contrast commonly used operating systems:
 - Windows
 - Unix/Linux
 - Apple
- c) Distinguish between system software and application software.
- d) Distinguish between a command-based system and graphical user interface.

- e) Discuss popular file types (MS Office, images, PDF, text files) and their association with software programs
- f) Identify and describe the parts and use of a window in a GUI.
- g) Distinguish between active window and background items.
- h) Demonstrate desktop management skills:
 - Use themes, screen savers, backgrounds
 - Use Tiling, cascading
 - Use Short-cuts and icons
 - Use Task bar, Quick Launch, Desktop menus
- i) Demonstrate file management skills:
 - Create and recognize valid file names and folders
 - Use find, copy, move, rename, delete files and folders
 - Explain the deletion process and recovery methods
- j) Demonstrate how to navigate and select using GUI tools
 - Use the operating system Help system to find answers to questions about operations and command usage

Ethics and Security

- a) Distinguish among a computer virus, worm, trojan horse, denial of service attack, back door and spoofing, and identify ways to safeguard against these attacks.
- b) Discuss and explain the concepts of:
 - Hacking and Cracking
 - Authorization and Authentication
 - Attacks, Spam, Phishing, Malware, social engineering
- c) Discuss the vulnerabilities introduced by technologies, such as wireless networks, social media sites and cloud storage
- d) Discuss and explain intellectual property rights, piracy, and information theft
- e) Discuss and explain plagiarism and issues associated with using the Web for research
- f) Discuss and explain codes of conduct and privacy issues associated with computing
- g) Discuss social, legal, and ethical issues including privacy, intellectual property, health concerns, green computing, and accessibility
- h) Discuss the relationship between rights and responsibilities associated with computing and the role of the Bill of Rights in protecting personal rights

Information Literacy

- a) Identify types and purposes of resource formats (books, encyclopedias, DVDs, popular publications, scholarly publications, Internet websites, Wikipedia)
- b) Construct a search strategy using appropriate commands for the information retrieval system selected (phrase, truncation, Boolean operators, and subject terms)
- c) Explain how to evaluate information found online and in library databases for reliability, validity, accuracy, authority, timeliness, and point of view or bias

Productivity Tools

Word Processing

- a) Identify the significant components of the word processing interface
- b) Use the Help system
- c) Perform basic editing, text formatting, move, copy, and cut and paste functions
- d) Use available view modes
- e) Use essential save and backup options
- f) Use print functions

- g) Create headers and footers
- h) Use document identification features such as embedded date, time and pagination in headers and/or footers
- i) Use document style features such as font styles, sizes, colors, margins, alignment, and indentation
- j) Use document context manipulation functions, such as find, search and replace, spell checker, and a grammarian

Spreadsheets

- a) Identify and explain the significant components of the spreadsheet interface
- b) Use the Help system
- c) Perform basic editing, data entry, move, copy, and cut and paste functions.
- d) Perform basic insertion, deletion and modifications at the sheet/workbook level
- e) Create, and use formulas
- f) Use basic, built-in spreadsheet functions
- g) Distinguish between relative and absolute addressing
- h) Use relative and absolute addressing appropriately in a worksheet
- i) Use essential formatting features, including data type, color, alignment, shading, and font characteristics
- j) Use print functions
- k) Perform basic data representation using graphs and charts

Database

- a) Define the terms database, DBMS, file, record and field
- b) Create and add data to a database
- c) Create and use simple queries for searching and manipulating data
- d) Create simple reports and forms

Presentation Graphics

- a) Describe use of presentations, including discussion on appropriate data display techniques
- b) Create and manipulate simple slide shows with outlines and notes
- c) Create slide presentations that include text, graphics, animation, and transitions
- d) Use design layouts and templates for presentations

Web Authoring and Publishing

- a) Create a Web page using the following HTML tags:
 - basic tags (head, body, title)
 - DTD or schema
 - img tag to insert a graphic)
 - a tag (to create a link)
 - table tags - table, td, tr (to create a table)
 - h1...h6 (to insert headings)
 - ul, ol, li (to insert ordered and unordered lists)
- b) Create simple inline and embedded styles using Cascading Style Sheets) CSS
- c) Publish a Web page on the Internet

Software Development

- a) Define and discuss each step in the software development life cycle:
 - Planning and Analysis

Design
 Coding
 Debugging and testing
 Deployment
 Maintenance
 Define open source vs. closed source
 Discuss popular markup languages (such as XML and HTML) and popular programming languages (such as Java)

Optional Topics

Specialized and Emerging Technologies

- a) Decision and Group Decision Support Systems
- b) Knowledge-based and Expert Systems
- c) Artificial Intelligence
- d) Learning Systems
- e) Natural Language Processing
- f) Neural networks
- g) Search engine technologies
- h) Robotics
- i) Bioinformatics

Required Time Allocation per Topic

In order to standardize the core topics of ITE 115 so that a course taught at one campus is equivalent to the same course taught at another campus, the following student contact hours per topic are required. Each syllabus should be created to adhere as closely as possible to these allocations. Of course, the topics cannot be followed sequentially. Many topics are taught best as an integrated whole, often revisiting the topic several times, each time at a higher level. There are normally 45 student-contact-hours per semester for a three credit course. (This includes 15 weeks of instruction and does not include the final exam week so $15 \times 3 = 45$ hours. Sections of the course that are given in alternative formats from the standard 16 week section still meet for the same number of contact hours.) The final exam time is not included in the time table. The category. Other optional content, leaves ample time for an instructor to tailor the course to special needs or resources.

Topic	Time in Hours	Percentages
Computer Hardware	4	9%
Communications Technology	2	4.5%
Operating Systems	3	7%
Ethics and Security	4	9%
Information Literacy	2	4.5%
Productivity Tools		
Word Processing	3	7%
Spreadsheets	6	13%
Databases	6	13%
Presentation Graphics	3	7%
Web Authoring and Publishing	4	9%
Software Development	1	2%
Specialized and Emerging Technologies (Optional)	2.5	5%

Tests and Quizzes (not including the Final Exam)	4.5	10%
Total	45	100%