

Fundamentals Of Computer Systems

Instructor : Husain Ghloom

Course # : 102

Number of Units : 3

Class Hours : Lecture → Sunday , and Tuesday 2 – 3:30pm Room # 110

Phone & Office Hours : To be Announced

Required Text Book : Computer Concepts 10th edition, Parsons & Oja
(comprehensive version)

This course teaches computer literacy and software competency.

Evaluation:-

Tests : 2 = 200 = 30 % of the final grade.

Assignments : about 15 = 150 = 7 % of the final grade.

Quizzes : ≈ 10 = 100 = 8 % of the final grade.

Attendance : 5 % of the final grade.

Final Exam : 1 = 100 = 50 % of the final grade.

Total : 100 %

Grade Distribution :

90 -- 100 → A
85 -- 89 → B+
80 -- 84 → B
75 -- 79 → C+
70 -- 74 → C
65 -- 69 → D+
60 -- 64 → D

Assignments are due on the assigned date. They will be considered late after the end of the class on the day they are due. If you have a problem that prevents you from turning in your assignment on time, talk to me about it before it is due. If your assignment turned in late, you will lose 25 % per class day. Assignments will not be accepted if they are more than one class day late.

You are to do your own work on your assignment. If you are having trouble, ask questions in class or see me during office hours for help. If you have conflict with my office hours, make an appointment with me for a convenient time.

DO NOT SKIP CLASS to WORK ON ASSIGNMENTS. That will only cause you to get further behind.

I do not like to like give make-up tests. If you have a very good reason why you cannot take the exam at the given time, talk to me about it before the exam. There will be no makeup arranged after the test is given.

You are responsible for reading all of the assigned chapters. I recommend that you read them before class, so that you will be prepared to ask questions during the lecture.

Course Name: Fundamentals of Computer Systems (102)

Course Outline :

(1) Computer and Internet Basics :

- Computer definition, Basic computer system components, Peripheral devices.
- Computer functions: Input, Processing, Output, and storage.
- Computer categories, types of PCs
- Data, information, and files.
- Application and system software.
- Internet Basics: Web, website, P2P, e-commerce, e-mail, downloading, uploading.
- Connecting to the internet: ISPs, Types of connections, types of modems.
- WWW Basics: web, website, webpage, web server, hyperlink, hypertext, homepage, URL, History, bookmarks.
- E-Mail Basics: e-mail account, e-mail address, e-mail message, attachments, e-mail systems, e-mail servers, store and forward technology.

(2) Computer Hardware

- Storage technology, storage medium, storage device.
- Comparing storage technologies: Magnetic, Optical, and Solid state.
- Comparing storage media and devices: Versatility, durability, speed, and capacity
- Hard disk: Construction of, format, capacity, and speed.
- CD/DVD Technology: Types of – ROM – R - RW.
- Solid state storage: Card Reader, USB flash, CF cards, MMC Cards, SD cards, SmartMedia Cards.
- Examining Input Devices.
- Comparing Display Devices.
- Comparing Printers.
- Understanding expansion slots, cards, and ports.

(3) Computer Software

- Application Vs. System software, Executable files Vs. Data files, Support programs.
- How computers interpret software, programming languages, compilers, machine language.
- Exploring operating systems, resources, user interface, kernel, and utilities.
- Comparing operating systems single user Vs. multi user, Desktop OS Vs. Server OS, DOS, Windows, Mac OS, Unix, Linux, Palm OS, Windows Mobile OS.
- Office productivity software, word processing SW, Desktop publishing SW, Web-authoring SW, Spreadsheet SW, DBMS SW.
- Graphics and presentation SW.
- Entertainment and education SW, Audio editing, video editing, educational and reference SW.
- Business and Science SW, Accounting and finance SW, Vertical Vs. Horizontal market SW, Statistical SW, Mathematical modeling SW, Groupware.
- Understanding Utilities: 3rd party utility, Compression utility, FTP utility, Security utility, Document reader utility, system utility, hard disk utility.
- Copyrights and licensing: end-user license, single-user license, multiple user, concurrent use, site license, shrink-wrap license, copyrights.

(4) Digital Electronics and File Management

- Digital Data representation, bits and bytes, binary numbering system, numeric data, character data, ASCII and EBCDIC, KB,MB,GB,TB.
- Integrated circuits and motherboard, processor, ALU, CU, clock speed word size, cache, CISC Vs RISC.
- Exploring memory: RAM, capacitors, RAM speed, virtual memory, ROM, ROM-BIOS, CMOS.
- Computer files: Files, Filename, File extensions, file format, file locations (directories), folders, paths, file management utilities, renaming, copying, moving, and deleting files.

- File storage, formatting a storage medium, tracks and sectors, clusters, FAT, MFT, fragmented and de-fragmentation utility.

(5) Networks and the Internet

- Introducing networks, network resources, adv. and disadv. of networks.
- Network Classifications: PAN, LAN, NAN, MAN, and WAN, client/server networks, peer-to-peer networks.
- Network topologies: star, ring, bus, tree, mesh.
- Network hardware: modem, cable modem, network card, transceiver, hub, router, repeater.
- Communication channels: wired (twisted pair cable, coaxial cable, fiber optics cable); wireless (radio freq. signals, microwaves, satellites, infra red signals).
- Transporting data: Protocols, packet, packet switching, circuit switching, TCP/IP protocol.
- Wired technology: Ethernet.
- Wireless technology: Wi-Fi networks, Bluetooth.
- Internet connections: NSPs, ISPs, IP addresses: static Vs. dynamic, domain names.
- Connecting to the internet: Dial-up, DSL, cable connections, wireless DSS, WiMAX, public Wi-Fi networks (hotspots), WAP.

(6) Data security

- Introducing computer viruses: hackers, trigger event, file virus, boot sector virus, Trojan horse, backdoor, worms, blended threat.
- Virus spread techniques.
- Introducing BOTS.
- Using anti-virus software.
- Data backup.