CLUSTER UNIVERSITY SRINAGAR

SYLLABUS (FYUP UNDER NEP 2020)

Offered By Department of COMPUTER APPLICATIONS

Semester 1st (Major Course)

Course Title: Fundamentals of Computers

Course Code: UGCOA22J101
Credits: 4 (Theory: 3, Practical: 1)
Contact Hrs: 75 (Theory: 45, Practical: 30)

Max. Marks 100
Theory External: 60; Min Marks: 24
Theory Internal (Continuous Assessment): 15 Marks, Min Marks: 06
Practical Experimental Basis= 15, Min. Marks: 06
Practical Experimental (Continuous assessment) = 10, Min. Marks: 04

Objectives:

● The basic objective of this course is to impart the fundamental concepts of computers and introduce learners with basic knowledge of operating systems, computer networks, Internet and database management systems.

UNIT 1: **(15 Hrs)**

Introduction to Computers: Characteristics of Computers, Basic Organization of a Digital Computer, classification of digital computer systems; central Processing Unit, microprocessor, input and output devices, storage devices, semiconductor memory and its types, primary and secondary memory, registers, cache memory. concept of hardware and software, different types of system software and application software. introduction to different types of computer languages.

UNIT 2: **(15 Hrs)**

Number Systems: Decimal, Binary, Octal, Hexadecimal. Conversion between different number systems. Flowcharts & algorithms: Flowchart symbols; Algorithms and features; Basic flowcharts and algorithms for
problem solving; Basics of Operating Systems: Definition, Types and functions; Introduction to Windows, Linux and Android operating systems; Working with the Windows Operating System.

UNIT 3: **(15 Hrs)**

Introduction to Computer Network and Internet. Definition of Computer Network; Types of Networks: LAN, WAN, MAN and PAN; Concept of Internet; Applications of Internet; Basic Internet terminology: Web
Page, Home Page, Website, Web Browser, URL, ISP, Web Server, World Wide Web, e-mail, Instant Messaging,
Video Conferencing, Concept of Domain Name System and IP Address.

Sample Lab Work (indicative) (1 Credits, 30 Hours)

1. Identify various components of computer hardware types, like Processor (Pentium, Core 2 Duo, Core i3 etc), RAM(DDR, DDR2, DDR3), Storage (HDD, SSD Disks), motherboard, CMOS, expansion slots etc.
2. Compare hardware of Desktop, All-in-One PCs, Laptops & Smartphones.
3. Disassemble and Reassemble a desktop computer.
4. Identify various types of Input and Output devices.
5. Connect peripherals to a computer like USB, Headphones, Printers, projector etc.
6. Understand the booting process of a computer.
7. Understand the various features of BIOS in a computer.
8. Configure the BIOS of a computer to set the date, change settings etc.
9. Identify different types of Operating systems like Windows, Linux and Android including their features.
10. Understanding the Installation process of Operating Systems like Windows and Linux.
11. Install various application software on a Windows Operating system.
12. Install various application software on a Linux Operating system.
13. Install any type-training software and achieve typing speed proficiency of at least 15 words per minute.
14. Install compiler software for C, Python and Java Programming languages.

15. Write a flowchart to calculate the area of a triangle.
16. Write a flowchart to check if a number is even or odd.
17. Write a flowchart to find the largest of three numbers.
18. Write a flowchart to find the Fibonacci sequence up to a given number.
19. Write a flowchart to check if a string is a palindrome.
20. Write a flowchart to find the sum of all elements in an array.
21. Write a flowchart to find the maximum element in an array.
22. Connect a PC to the internet and browse a website.
23. Learn to use Google and Bing Search Engine with smart querying.
24. Learn use of Generative AI websites like ChatGPT and Google Bard.
25. Learn to copy and paste content from the internet and save it on a local file.
26. Learn the use of Google Drive for backup.
27. Learn use of email concepts like to, cc, bcc, attachment, forwarding, filter, spam.
28. Learn concepts of video conferencing.
29. Connect two computers using a LAN cable to share files.
30. Understand the use of DNS and VPN.

SUGGESTED READING:

1. Sinha, P.K. (2004). Fundamentals of Computers. BPB Publications.
2. Rajaraman, V. (2004). Fundamentals of Computers. Prentice Hall India Pvt.
3. Goel, A. (2010). Computer Fundamentals. Pearson Education India.