Scheme of Instruction and Syllabus

For

B.Sc - Computer Science (AI & ML)

Under Choice Based Credit System

(With effect from the academic year 2025-26)

Mahatma Gandhi University

Nalgonda

Telangana State

508254

FACULTY OF SCIENCE

B.Sc.Computer Science (AI & ML)

SEMESTER – I

Fundamentals of Information Technology

(W.e.f. 2025-2026)

Theory: 4 Hours/week	Credits: 4	Internal Marks: 20	External Marks :80

Course Objectives:

Cob1: To deal with the basic concepts of computers
Cob2: To discuss about the computer hardware, its components and basic computer architecture.
Cob3: To understand the basic computer software including the operating system and its concepts.
Cob4: To introduce the software development process
Cob5: To introduce the basic concepts of programming.

Course Outcomes: Students should be able to

CO1: Identify the components of a computer and their functions.
CO2: Understand the concept of networking, LAN, Internet and working of www.
CO3: Understand the notion of problem solving using computer by programming
CO4: Understand the notion of software Project and the Process of software development.

Unit I

Data and Information: Introduction, Types of Data, Simple Model of a Computer, Data Processing using a Computer, Desktop Computer [Ref.1]
Acquisition of Numbers and Textual Data: Introduction, Input Units, Internal Representation of Numeric Data, Representation of Characters in Computers, Error-Detecting Codes [Ref. 1]

Unit II

Data Storage: Introduction, Storage Cell, Physical Devices Used as Storage Cells, Random Access Memory, Read Only Memory, Secondary Storage, Compact Disk Read Only Memory (CDROM), Archival Store [Ref.l]
Central Processing Unit: Introduction, Structure of a Central Processing Unit, Specifications of a CPU, Interconnection of CPU with Memory and I/O Units, Embedded processors [Ref.1]

Unit III

Computer Networks: Introduction, Local Area Network (LAN), Applications of LAN, Wide Area Network (WAN), Internet, Naming Computers Connected to Internet, Future of Internet Technology [Ref.1]
Operating Systems: Functions of operating systems, types of operating systems, Device & Resource management

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Input Output Devices: Introduction, Keyboard, Video Display Devices, Touch Screen Display, E-Ink Display, Printers, Audio Output [Ref.1]
Computer Software: Introduction, Operating System, Programming Languages, Classification of Programming Languages, Classifications of Programming Languages based on Applications [Ref.1]

Unit IV
Database Management Systems: Data models, RDBMS, SQL, Database Transactions, data centers, cloud services.
The software Problem: cost, schedule, and Quality, Scale and change [Ref.2]
Software Processes: Process and Project, Component Software Processes, Software Development Process Models [Ref.2] **Programming Principles and Guidelines:** structured Programming, Information Hiding, some Programming Practices, Coding Standards [Ref.2]

Suggested Books

1 V.Rajaraman. Introduction to Information Technology, 3'd Edition, PHI Leaming Private Limited,2018

2 Pankaj Jalote. Concise Introduction to software Engineering, Springer, 201

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FACULTY OF SCIENCE

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SEMESTER – I

Fundamentals of Information Technology Lab

(w.e.f. 2025-2026)

Practical : 2 Hours/week	Credits: 1	Marks:25

Course Objectives:

Cob1: To understand the basics of computer concepts, theory.
Cob2: To interact effectively with the computers.
Cob3: To know the operating systems basics.
Cob4: To know about computer peripherals and different fundamentals.

Course Outcomes:

CO1: Identify different PC computers and their connections.
CO2: Understand basic components of different Operating Systems.
CO3: Use different system utilities.
CO4: Knowledge of different pheripherals.

Lab Experiments:

1. Assembly and disassembly of a system box and identifying various parts inside the system box to recognize various parts of a typical computer system
2. Assembly and disassembly of peripheral devices- keyboard and mouse and study of their interface cables, connectors and ports.
3. Installation of Operating Systems-Windows and Linux
4. Disk defragmentation using system tool.
5. Procedure of disk partition and its operation (Shrinking, Extending, Delete, Format).
6. Installing and uninstalling of device drivers using control panel.
7. Working practice on windows operating system and Linux operating system: creating file, folder. Copying, moving, deleting file, folder.
8. User Account creation and its feature on Windows operating system and changing resolution, color, appearances, and Changing System Date and Time.
9. Installation and using various wireless input devices (Key board, Mouse/Scanners etc.,) under Windows/ Linux.
10. Study of various types of memory chips and various types of hard disk drives, partition and formatting of hard disk.

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11. Installation of scanner, modem and network cards in Windows /Linux.

12. Assembly and disassembly of printer, installing a printer, taking test page, and using printer under Windows/ Linux

13. Installation of application software's - Office Automation, Anti-Virus.

14. Demonstrate the usage of Word and Power Point in Windows and Linux

15. Configure Internet connection, Email Account creation, reading, writing and sending emails with attachment.

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