1.5 FUNDAMENTALS OF COMPUTER AND INFORMATION TECHNOLOGY

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RATIONALE

The diploma holders in Computer Engineering needs to understand computer fundamentalsand information technology. They should be able to operate basic software related to computer. Hence this subject is introduced in the curriculum.

LEARNING OUTCOMES

After undergoing the subject, the students will be able to:

- Understand a computer system that has hardware and software components, which controls and makes them useful.
- Understand the operating system as the interface to the computer system.
- Outline various application of IT
- Differentiate between assembly and high level language
- Identify various web browser
- Use the Internet to send mail and surf the World Wide Web

DETAILED CONTENTS

1. Fundamentals of Computer   (12 Periods)

Historical evolution of computers, Generations of computers, Classification of computers - based on size, processor, Usefulness of Computers. Applications of computers, Block Diagram along its components and characteristics, Interaction between the CPU, Memory Input/output devices, function of CPU and major functional parts of CPU. State the relevance of speed and word length for CPU Performance, Recognize the current family of CPUs used in Computers, Types of Memory- RAM ROM, Monitor, Mouse, Keyboard, Disk, joysticks, Storage Devices, floppy disk, CD, DVD, Pen drive, trackballs, Printers Types of printers, Scanner, Modem, Video, Sound cards, Speakers

2. Data Representation   (08 Periods)

Definition Of Information, difference between data and information ,importance of Binary Number System, various number systems, Conversion from Decimal to Binary, Conversion from Binary to Decimal, binary number into hexadecimal

number, hexadecimal number into binary number System, Memory Addressing and its Importance, ASCII and EBCDIC coding System

3.   DOS & Windows Operating Systems   (10 Periods)

Hardware and Software, Types of Softwares, Introduction and need of operating system, Types of operating system, dos operating system, Types of dos Commands, operating system as a resource manager; BIOS; System utilities - Editor, Loader, Linker, File Manager. Concept of GUI and CUI standards. Directories and files , wild cards, autoexec.bat, config.says, features of Window desktop, components of Window, function of each component of Window, method of starting a program using start button, Understand maximize, minimize, restore down and close button, uses of file and folder, method of viewing the contents of hard disk drive using explore option, control panel,disk defragmentation installation and un installation of the application software.

4.   Fundamentals of Internet   (12 Periods)

Concepts of computer Network, Client Server Model, Peer to Peer Model, Networking Devices: Switch, Router, Hub, Bridge, Gateway, LAN, MAN, WAN, Topology, Internet, Intranet, Extranet, internet service provider and its relevance, role of the modem in accessing the internet, installation procedure of a modem using control panel, purpose of web browser software, URL,URI, URN, WWW, FTP,HTTP,RDC(Remote Desktop Connection), Telnet, Email, process of sending and receiving e-mail, transmission modes, IP address and its format, MAC Address, DNS, search engines, social network sites, internet security, Firewall, Cloud Computing and its services

LIST OF PRACTICALS

1.   Familiarization with Computer System and its peripheral devices
2.   Familiarization with Operating System
3.   Practice of internal and external commands of DOS
4.   Working practice on windows operating system : creating file, folder. Copying, moving, deleting file, folder
5.   Installing and uninstalling of new software using control panel.

6.	Installation and uninstallation of new hardware drivers using control panel.

7.	Disk defragmentation using system tool

8.	Procedure of disk partition and its operation (Shrinking, Extending, Delete, Format).

9.	Installation of Operating Systems

10.	Changing resolution, colour, appearances, and screensaver option of the display

11.	Changing System Date and Time.

12.	User Account creation and its feature on Windows Operating System

13.	Email Account creation, reading, writing and sending emails with attachments.

14.	Internet browsing using browsers.

15.	Using of Search Engine to get information from internet

INSTRUCTIONAL STRATEGY

Since this subject is practice oriented, the teacher should demonstrate the capabilities of computers to students while doing practical exercises. The students should be made familiar with computer parts, peripherals, connectors etc. and proficient in making use of operating system functionalities in addition to working on internet. The student should be made capable of working on computers independently

MEANS OF ASSESSMENT

−	Assignments and quiz/class tests, mid-term and end-term written tests
−	Actual laboratory and practical work, exercises and viva-voce
−	Software installation, operation, development and viva-voce

RECOMMENDED BOOKS

1.	Fundamentals of Computer by E Balagurusamy,Tata McGraw Hill EducationPvt. Ltd, New Delhi

2.	Fundamentals of Computer by V Rajaraman; Prentice Hall of India Pvt. Ltd., New Delhi

3.	Computer Fundamentals by RS Salaria; Khanna Book Publishing Co. (P) Ltd., New Delhi

4.	Computers Today by SK Basandara, Galgotia publication Pvtltd. Daryaganj, New Delhi.

5.	Computer Fundamentals and Programming in C by ReemaThareja; Oxford University Press, New Delhi

6. Computer Fundamentals by PK Sinha; BPB Publication, New Delhi

7. e-books/e-tools/relevant software to be used as recommended by AICTE/UPBTE/NITTTR.

Websites for Reference:

http://swayam.gov.in

http://spoken-tutorial.orgs

SUGGESTED DISTRIBUTION OF MARKS

Topic No.	Time Allotted (Periods)	Marks Allotted (%)
1	12	30
2	08	20
3	10	25
4	12	25
Total	**42**	**100**