INTRODUCTION TO COMPUTER SCIENCE AND INFORMATION TECHNOLOGY
(Common to CSE& IT)

Course Code : 13CT1101

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Course Educational Objectives:

To introduce the student to various computer fundamentals. The course will cover all the issues of computer hardware and software with illustrations.

✤ To make the student knowledgeable in computer fundamentals.

✤ To make the student capable of understanding and analyzing the hardware and software components of a computer.

✤ Explains the fundamentals of operating systems.

✤ Explains the storage media and data representation.

✤ Explains the importance of protecting the system from various attacks and protection.

Course Outcomes:

At the end of the course the student will be able to

✤ Gain the knowledge in computer fundamentals

✤ Analyze the hardware and software components of a computer

✤ Gains the knowledge about the fundamentals of operating systems

✤ Gain the knowledge about various storage media and data representation.

✤ Gain the knowledge about various components of computers, virus attacks, and their cures.

UNIT-I   (12 Lectures)
INTRODUCTION TO COMPUTER CONCEPTS:
What is a computer, definition of computer, importance of computers,

computers history and development, classification of computers, benefits and limitations of computers, components of a pc system – the hardware, a closer look at the hardware, software, popularity of personal computers, uses of computers, summary.

COMPUTER ARCHITECTURE:

Input and output unit, Central Processing Unit, Memory Unit, ALU Organization, Control Unit Organization, Memory System.

UNIT-II   (12 Lectures)

DATA REPRESENTATION:

Logic Gates/Circuits, Bits and Bytes, Number system for data representation, Error Detection and correction Codes.

INPUT / OUTPUT DEVICES:

Mother Board, Input Device, Output Device, Storage Devices, Cards, Ports and cords, Power supply.

UNIT-III   (10 Lectures)

STORAGE MEDIA:

Floppy Disk and hard Disk, Compact Disc.

SOFTWARE CONCEPTS:

Classification of software, operating systems, concept of programming computer, types of computer languages, language translators, Software tools, windows – A graphical user interfaces(GUI), general purpose application software, special purpose application software.

UNIT-IV   (14 Lectures)

OPERATING SYSTEM:

Introduction, introduction to operating system, services of an operating system, components of the operating system software, terminology used in operating system, types of operating systems, classification of operating systems, single user systems, multi-user systems, multi-user systems and networks.

NETWORKING:

Communication, networking, advantages of networking, types of networks, components of a network, standard topologies, access methods, network

operating system, LAN expansion, wide area network transmission, sending data across a WAN.

UNIT-V   (12 Lectures)

COMPUTER VIRUSES: ATTACK, PREVENTION AND CURE:

Definition of a virus, virus characteristics, what is sinister about viruses, virus history, how viruses are spread, different kinds of virus, damage done by viruses, virus prevention, networks and viruses, network protection, things that are not viruses, the future of viruses, anti-virus in the future, summary.

TEXT BOOK:

S. K Bansal, *Fundamentals of Information Technology*, 1st Edition, APH Publishing Corporation, 2012.

REFERENCE:

Anita Goel, *Computer Fundamentals*, 1st Edition, Pearson Education, 2010.