

Introduction to Information Technology (CSC-114)

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M.Sc. CSIT

Course Nature

| Title | Digital Logic |
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| Short Name | IIT |
| Course code | CSC-114 |
| Nature of course | Theory + Practical |
| Full marks | 60 + 20 + 20 |
| Pass marks | 24 + 8 + 8 |
| Credit Hrs | 3 |

Course Description

- This course covers the basic concepts of computers and information technology including introduction, hardware, software, memory, input/output, data representation, database, networks and data communication, Internet, multimedia, and computer security.

Course Objectives

- The main objective of this course is to provide students knowledge of fundamental concepts of computers and information technology.

Syllabus

- **Unit 1: Introduction to Computer (3 Hrs.)**
 - Introduction
 - Digital and Analog Computers
 - Characteristics of Computer
 - History of Computer
 - Generations of Computer
 - Classification of Computer
 - The Computer System
 - Application of Computers

- **Unit 2: The Computer System Hardware (3 Hrs.)**

- Introduction
- Central Processing Unit
- Memory Unit
- Instruction Format
- Instruction Set
- Instruction Cycle
- Microprocessor
- Interconnecting the Units of a Computer
- Inside a Computer Cabinet

- **Unit 3: Computer Memory (4 Hrs.)**

- Introduction
- Memory Representation
- Memory Hierarchy
- CPU Registers
- Cache Memory
- Primary Memory
- Secondary Memory
- Access Types of Storage Devices
- Magnetic Tape
- Magnetic Disk
- Optical Disk
- Magneto-Optical Disk
- How the Computer uses its memory

- **Unit 4: Input and Output Devices (4 Hrs.)**

- Introduction
- Input-Output Unit
- Input Devices
- Human Data Entry Device
- Source Data Entry Devices
- Output Devices
- I/O Port
- Working of I/O System

- **Unit 5: Data Representation (6 Hrs.)**

- Introduction; Number System;
- Conversion from Decimal to Binary, Octal, Hexadecimal;
- Conversion of Binary, Octal, Hexadecimal to Decimal; Conversion of Binary to Octal, Hexadecimal;
- Conversion of Octal, Hexadecimal to Binary; Binary Arithmetic; Signed and
- Unsigned Numbers; Binary Data Representation; Binary Coding Schemes; Logic Gates

- **Unit 6: Computer Software (6 Hrs.)**

- Introduction; Types of Software; System Software; Application Software; Software Acquisition;
- Operating System (Introduction, Objectives of Operating System, Types of OS, Functions of OS, Process Management, Memory Management, File Management, Device Management, Protection and Security, User Interface, Examples of Operating Systems)

- **Unit 7: Data Communication and Computer Network (5 Hrs.)**
- Introduction; Importance of Networking; Data Transmission Media; Data Transmission across Media; Data Transmission and Data Networking; Computer Network; Network Types; Network Topology; Communication Protocol; Network Devices; Wireless Networking

- **Unit 8: The Internet and Internet Services (4 Hrs.)**
- Introduction; History of Internet; Internetworking Protocol; The Internet Architecture; Managing the Internet; Connecting to Internet; Internet Connections; Internet Address; Internet Services; Uses of Internet; Introduction to Internet of Things (IoT), Wearable Computing, and Cloud Computing, Introduction to E-commerce, E-governance, and Smart City, and GIS

- **Unit 9: Fundamentals of Database (4 Hrs.)**
- Introduction; Database; Database System; Database Management System; Database System Architectures; Database Applications; Introduction to Data Warehousing, Data mining, and BigData

- **Unit 10: Multimedia (3 Hrs.)**

- Introduction; Multimedia - Definition; Characteristics of Multimedia; Elements of Multimedia; Multimedia Applications

- **Unit 11: Computer Security (3 Hrs.)** Introduction; Security Threat and Security Attack; Malicious Software; Security Services; Security Mechanisms (Cryptography, Digital Signature, Firewall, Users Identification and Authentication, Intrusion Detection Systems); Security Awareness; Security Policy

Text Book

1. Computer Fundamentals, Anita Goel, Pearson Education India

Laboratory Works

- hardware components of computer,
- operating systems,
- Word Processors,
- Spreadsheets,
- Presentation
- Graphics,
- Database Management Systems,
- Internet and its services.
- Others

Internal Evaluation (20 marks)

- First Term → 5 marks
- Pre-Board → 5 marks
- Assignment → 5
- Attendance → 5

May varies as per college policy

Practical Exam (20 marks)

- Lab Report → 5
- Viva → 5
- Question solution in copy → 5
- Execution in compute/Hardware → 5

Assignment and Lab report

- No of assignments → Around 10
- No. of Labs → Around 10