

# **OBJECTIVES OF COMPUTER STUDIES/COMPUTER SCIENCE SYLLABUS**

## **OBJECTIVES**

The main objectives of this curriculum on Computer Studies/Science are to prepare students for working in the Computer world of tomorrow and to provide an adequate supply of computer personnel in order to meet their need in the private and public organizations of Pakistan which are striving their way patiently and boldly in this challenging technology of the developed countries of the world.

## **SPECIFIC OBJECTIVES**

The students should be able to:

1. improve their efficiency by adopting the computer oriented methods in place of traditional manual methods;
2. use the computer system to solve the various scientific and socio-economical problems with enormous speed, one hundred per cent accuracy and be aware of the huge capacity of storing such information;
3. codify the problem oriented information (the programming techniques) by using the Computer Languages to catch up with the present state of art of the latest Computer technology of this era;
4. familiarize with the functioning of various computer equipment and the day-to-day working terminologies.

# **CONTENTS OF COMPUTER STUDIES SYLLABUS**

## **FOR COMMERCE GROUP**

### **I. Introduction to Computer System**

- a. Definition of Computer and usefulness in Commerce
- b. Types of Computer
  - i. Differentiation among Digital, Analog and Hybrid Computers
  - ii. Classification of Digital Computer, Micro Computers, Mini Computers, Mainframe, Elements of Data Processing
  - iii. Familiarization with terminology and brief description of various fields, within computer science i.e. Hardware, Software (System Software and Application Software) System analysis Programming etc.

### **II. Components of Digital Computer System and their Functions:**

Central Processing Unit:

- i. Control Unit
- ii. Arithmetic and Logic Unit
- iii. Main Memory
  - a. *Input/Output Devices*

Functioning, advantages and disadvantages of various input/output devices i.e. Terminal printers, Card Readers, Diskette Readers etc.
  - b. *Secondary Storage Devices*

Disk drives fixed (Winchester), removable, Floppy, Magnetic Tape drive etc, Usage and suitability of various secondary storage devices according to their speed and volume should be explained.

### **III. Information Representation in Computers**

- i. Number System
  - a. Decimal, Binary, Octal and Hexadecimal
  - b. Arithmetic operations i.e. Addition, Substraction, Multiplication and Division etc.
- ii. Machine Representation:
  - a. Representation of positive and negative integers using two's complements
  - b. Bits, Bytes, Words, representation of character representation of Instructions

### **IV. Elements of Data Processing**

Problems solving and various stages involved

- a. Defining the Problem
- b. Analysing of the problem
- c. Alogrithm
- d. Flow-charting
- e. Coding (Programming) the problem
- f. Processing the Problem
- g. Testing and Debugging
- h. Final Output (Showing results of Problem)

### **V. Programming Languages**

- a. Classification of language (low level, Intermediate level and high level)
- b. Low level language (Machine Language)
- c. Intermediate level language (Assembly Language)
- d. High level languages (Fortran, Cobol, Pascal and Basic etc)

- e. Suitability of a programming language according to the nature of problem

## **VI. Elements and Programming in Basic Language**

- a. Assignment statements
- b. Control statements
- c. Input/Output statements
- d. Specification statements
- e. Usage of Basic Statements in developing programmes for simple problems

## **VII. Major Applications**

For Research Development in:

Commercial, accounting, banking, insurance, shipping, census, immigration, taxation, communications, examinations, inventory (stores) personal information system

## **RECOMMENDED REFERENCE BOOKS**

In contrast to the previous practice the examination will not be based on a single textbook, but will now be curriculum based to support the examination reforms. Therefore, the students and teachers are encouraged to widen their studies and teaching respectively to competitive textbooks and other available material.

Following books are recommended for reference and supplementary reading:

1. Introduction to Computer  
Written by: Peter Norton

2. Introduction to Information Technology

Written by: Tasleem Mustafa (IT Series)