



National Council of Vocational and Research Training  
NewDelhi-110058

**COMPUTER AND INFORMATION TECHNOLOGY**  
Course Code: COM-494  
**POST GRADUATE DIPLOMA IN COMPUTER APPLICATION**



**DETAILED SYLLABUS  
FOR VOCATIONAL TRAINING PROGRAMME**

COURSE TITLE : POST GRADUATE DIPLOMA IN COMPUTER APPLICATION  
COURSE CODE : COM-494  
MEDIUM : ENGLISH  
QUALIFICATION : GRADUATE IN ANY DISCIPLINE  
DURATION : ONE YEAR  
CLASS TIMING : 10:00am – 04:00pm

**MARK ALLOTMENT**

THEORY : 300 Marks  
PRACTICAL : 200 Marks  
INTERNAL : 100 Marks  
TOTAL MARKS : 600 Marks  
PASSING MARKS : 40/ 100

**POST GRADUATE DIPLOMA IN COMPUTER APPLICATION**

PAPER-I : FUNDAMENTALS OF INFORMATION TECHNOLOGY

PAPER-II : COMPUTER BASED ACCOUNTING.

PAPER-III : COMPUTER PROGRAMMING AND PROBLEM SOLVING (USING C/C++)

**PAPER I FUNDAMENTALS OF INFORMATION TECHNOLOGY**

**SECTION – A**

**1. Basics of Computers and Number Systems**

Introduction to computer (ALU , Memory, CU), booting process, introduction of the concepts-bit, byte, word, hardware, operating system, system and application software, machine, assembly and high level languages, compilers, assemblers, loaders and linkers. ASCII and EBCDIC codes, Binary, Octal, Decimal and hexadecimal number systems and their conversion, Integer and floating point representation, error detection techniques.

**2. Input And Output Devices** Various input devices such as keyboard, mouse, joystick; output devices such as monitor (CGA, EGA, VGA and SVGA), different types of printers and plotters.

**SECTION – B**

**3. Memory**

Primary and secondary memory: RAM, ROM, PROM, EPROM, Cache, extended and expanded memory. Removable and non-removable secondary memory : tapes, disks, CDROM, DVD, comparison of these devices based on technology and speed. Organization of data on disks : Tracks, sectors, cylinders, heads, access time, seek time and latency time.

**4. Operating Systems - DOS, Windows and Unix.**

Features of DOS, windows and Unix operating systems and their comparison. Internal and External commands of DOS, File and directory management commands such as DIR, COPY, TYPE, DEL, DELTREE, UNDELETE, CHKDSK, FORMAT, XCOPY, SCANDISK, creating

batch files using REM,ECHO, PAUSE, IF, GOTO. AUTOEXEC.BAT and CONFIG.SYS files. Concepts of window, menu, icon, opening, closing and resizing windows, creating folder, Using Start, control panel, recycle bin and online help, using windows explorer to manage files and directories. Overview of UNIX structure, general purpose UNIX commands such as date, echo, cal, bc, pwd, passwd, file and directory commands such as ls, mkdir, cp, mv, rm, process management commands such as ps, kill, communication commands such as news, mesg, wall; working with editor, introduction to shell programming.

## SECTION – C

### 5. Introduction to Microprocessor

Various cards and chips, parallel and serial ports, typical configuration of a Pentium Computer , instructions execution, types of interrupts and interrupt handling PC-Tools, Norton Utilities, Virus detection, prevention and anti-virus packages

## SECTION – D

6. Installation and using Application Software and Data Management Tools. Understanding the features and applications of the following software and tools. MS-Word, MS-Excel, MS-Power Point,.

## References :

1. Basandra, S.K., 2007 : Computers Todays by Galgotia Publications, N.Delhi
2. Sanders, Donald M, 1988 : Computers Todays by McGraw Hill, New York, 3rd ed., N.Y. Int. ed.
3. Sinha, P.K, 2009 : Computer Fundamentals by. BPB Pubs, New Delhi, 4th ed.
4. Rajaraman, V., 2003 : Fundamentals of Computers, PHI, New Delhi, 4th ed.
5. Taxali, R.K. 2002 : PC Software made simple by. - Tata McGraw Hill – 7th Rep. New Delhi..
6. Dyson, Peter, 1991 : Understanding PC Tools Tech, Singapore.
7. Dyson, Peter, 1991 : Understanding Norton Utilities Tech, Singapore.
8. Curtin, 1999 : Information Technology TMH, New Delhi.
9. Mansfield, Ron, 1993 : Compact Guide to Windows, Word and Excel BPB Publishers. 1st Indian ed. New Delhi: BPB Pub.

## PAPER II COMPUTER BASED ACCOUNTING.

### SECTION – A

#### 1. Accounting:

Principles, concepts and conventions, double entry system of accounting, introduction of basic books of accounts of sole proprietary concern, control accounts for debtors and creditors, closing of books of accounts and preparation of trial balance.

2. Final Accounts: Trading, profit and loss accounts and balance sheet of sole proprietary concern with normal closing entries.

## SECTION – B

3. Introduction to manufacturing account, final accounts of partnership firms, limited company.
4. Introduction to computerized financial accounting, coding logic and codes required, master files, Transaction files, Introduction to documents used for data collection, processing of different files, outputs obtained.

## SECTION – C

5. Introduction to computerised Inventory control, types of inventory and associated documents, Inventory reports-nature and types, Inventory Control : ABC and Ageing analysis, Methods of Stock validation : LIFO, FIFO, actual bases, Interfacing Inventory with Financial Accounting, Purchasing Sub-Systems, Sales Order processing.
6. Introduction to Computerised Payroll & Invoicing Applications, Exposure to : Structure, Processing and Reports, Interfacing these applications to financial Accounting.

## SECTION – D

7. Use of Accounting package Tally : Introduction to Tally, Groups, Ledgers, Vouchers, Orders, Cost Centres and Categories. Stock. Reports in Tally

### **References :**

1. Kellock, J., 1972 : Elements of Accounting, Heinemann 1st ed., London.
2. Rockley, L.E., 1970 : Finance for the Non-Accountant 2nd. Edition, London : Business Book.
3. Levy and Sarnat, 1991 : Principle of Financial Management, Prentice- Hall International, PHI .
4. Arnold, 1984 : Financial Accounting, Prentice-Hall International (Paperback Edition).
5. Horngren and Sundem, 2010 : Introduction to Financial Accounting, Prentice-Hall International (Paperback Edition) N.D: PHI.
6. Murthy, U.S. : Management Finance, 2nd. Edition, Vakils Fefers & Simons Ltd.
7. Van Home, James, C., 2004 : Financial Management & Policy, Prentice Inc.
8. Pandey, I.M., 1979 : Financial Management, Vikas Publication, 6<sup>th</sup> Rev. ed., N.Delhi.

## **PAPER III COMPUTER PROGRAMMING AND PROBLEM SOLVING (USING C/C++)**

### SECTION – A

1. Problem Solving :  
Problem Identification, Analysis, Flow charts, Decision Tables, Pseudo code and algorithms, Program Coding, Program Testing and Execution.

## 2. Computer Programming Language (C Language) :

Concept of variable and constants, structure of a C program, various operators, expression and their evaluation using rules of hierarchy. Assignment Statements.

### SECTION – B

3. C Language Control Structures; Sequencing, alteration and iteration; Arrays, Manipulating vectors and matrices, pointers, String functions, structures, User defined functions, Input/Output files, Pre-Processors, Macros.

### SECTION – C

4. Object Oriented Programming Language (C++ Language) Introduction to Object Oriented Programming - Objects, Classes, Data abstraction, Data encapsulation, Inheritance (Single, Multiple, Hierarchical, Multilevel, Hybrid) Polymorphism, Dynamic binding, Message Passing. Tokens, expressions, data types, variables, operators, control statements.

### SECTION – D

5. C++ Language Arrays constructors & destructors. Classes, objects, functions & methods. File handling, exception handling and templates.

### References :

1. Kanetkar, Yashavant 2007. : Let us C, BPB Publications, New Delhi, 8<sup>th</sup> Rev. ed.
2. Gottfried, B., 1991. : Theory and problems of Programming in C, Schaum Series.N.D. TMH.
3. Salaria, R. S. : Object-Oriented Programming Using C++; 3rd ed. Khanna Book Publishing Co. (P) Ltd., New Delhi.
4. Sinha, P.K., 2004 : Computer Fundamentals, BPB Publications, 4th ed., N. Delhi .
5. Balaguruswamy, E., 2009. : Object Oriented Programming with C++, Tata McGRAW Hill, 4th ed.
6. Lafore, Robert 1996. : Object Oriented Programming in C++, Galgotia Publication, N.D. :
7. Ravichandran, V., 2002 : Programming with C++, Tata McGRAW Hill
8. Kanetkar Yashavant, 1999 : Let us C++, BPB Publications, New Delhi (First edition)
9. John R. Hubbard, 2006 : Programming with C++ Shaum's Series, Tata McGraw Hill. N.D. TMH, 2nd ed.
10. Salaria, R. S., 1999 : Application Programming in C; Khanna Book Publishing Co. (P) Ltd., New Delhi.