

॥ अंतरी पेदव् शानन्योल ॥



North Maharashtra University,

Jalgaon

Syllabus for

Diploma in Computer Programming

(w.e.f. July, 1999)

NORTH MAHARASHTRA UNIVERSITY JALGAON
DIPLOMA IN COMPUTER PROGRAMMING
FROM : JULY, 1999

I) INTRODUCTION

- 1) Name of the Course Shall be : Diploma in Computer Programming (D.C.P.)
- 2) This shall be two years part-time diploma..
- 3) Following shall be the papers.

FIRST YEAR

- I. FUNDAMENTALS OF INFORMATION TECHNOLOGY AND INTERNET
- II. INTRODUCTION TO FOXPRO
- III. WINDOWS AND MS-OFFICE
- IV. INTRODUCTION TO OBJECT ORIENTED PROGRAMMING & C++

SECOND YEAR

- I. PROGRAMMING IN FOXPRO
 - II. PROGRAMMING IN VISUAL BASIC
 - III. INTRODUCTION TO DESKTOP PUBLISHING (DTP)
 - IV. PROJECT WORK BASED ON A COMMERCIAL APPLICATION
4. Special emphasis shall be on practicals.
 5. Ordinarily, in each class not more than 60 students be admitted.

II) ELIGIBILITY FOR ADMISSION

A person who has passed H.S.C. examination or equivalent exam of any recognised board of diploma course of recognised board of technical education.

III) NUMBER OF LECTURES AND PRACTICALS

For each paper the theory course shall be for 48 lectures and practical course shall be of at least 12 practicals of two hours duration each. Every student shall maintain practical file for each paper.

IV) ASSESSMENT

For each paper of 100 mrks, the breakup shall be as under

- a) Theory paper of 3 hours duration : 60 marks
- b) Practical examination : 40 marks
It shall be panel of internal and external examiners. Each examinee shall allot marks out of 20 to Practical file and marks out of 20 to on the computer examination. Averaging of marks by both examiners shall be done.
- c) For each course, theory and practicals shall be separate head of passing.
- d) Examination shall be in April/May scheduled in such

- e) Standard of Passing : 40% in each course.

V) MEDIUM OF INSTRUCTION : ENGLISH

FROM: July, 1999

DCP

PAPER -I

**FUNDAMENTALS OF INFORMATION
TECHNOLOGY AND INTERNET**

A] COMPUTER FUNDAMENTALS

1. Introduction to Computer

Definition, characteristics, types of computer (digital, analog, and hybrid).

2. Number system:

Decimal binary, conversion of decimal to binary and vice versa, EBCDIC code, ASCII code.

3. Computer peripherals:

Input device-keyboard,mouse

Output device- Monitor, printer(dot matrix, inkjet , laser)

Memory- primary(RAM), Secondary(Floppy disk, CD ROM, Magnetic disk)

4. Operating system :

Concept, types(DOS, Windows 95, UNIX), functions

5. Introduction to programming :

Algorithm, flow chart, concept of program.

6. Computer Languages : Machine, high level, object oriented.

B] INFORMATION TECHNOLOGY:

1. Data processing techniques :

Concept of file, record, field, data

On-line processing, batch processing, multiprocessing, real time processing.

2. Computer Communication:

Concept of Communication, types, concept of networking (LAN,WAN)

3. Means of communication (concepts)

Modem, EPBX, FAX, E-Mail

4. Introduction to Internet :

4. Introduction to Internet :

Concept of Internet, Connecting to Internet, Browsing the web, sending and receiving e-mail.

5. Computer Applications :

Commercial, business, industrial, education, scientific.

PRACTICALS:

1. Booting of system.
2. Use of Dos commands(Internal, External)
3. Starting Windows 95 and study of Windows Elements
4. Study of FAX, (sending and receiving of Fax)
5. Study of modem
6. Connecting to Internet.
7. Use of various search engines
8. Web surfing.
9. Down loading and printing web sites/pages
10. Creating you own e-mail address in yahoo. dot. Com
11. Sending and receiving e-mail
12. Creating Favourite web sites

(From : July, 1999)

DCP **PAPER- II**
INTRODUCTION TO FOXPRO [2.6 For WINDOWS]

INTRODUCTION

What is a database ? Relational database, System requirements for windows base foxpro, about data and fields, data types in foxpro, introduction to foxpro commands and conversions, Windows : moving and sizing windows, changing windows, the command windows, the scroll bars, dialog boxes.

CREATING AND MANAGING DATABASE

Creating database, adding information to a file : entering data in a memo field, an introduction to BROWSE, Viewing a database, searching within a field, keeping track of records, editing a database, editing in Browse mode, using Browse with commands, Deleting records, Global replacements with commands, Modifying the structure of a database, Windows objects in a database : adding pictures to database, adding OLE data to a database with a clipboard

SORTING AND INDEXING A DATABASE

Sorting : Sorting on multiple files, Sorting a subset of a database, Sorting selected fields to a file, Indexing : Types of indexes, creating and index, selective indexing, indexing on multiple fields, open index files, using reindex, using close index.

PERFORMING QUERIES

Performing queries with the mouse : using Goto, using Locate, using Continue, using Seek, selecting subsets of data
Performing queries with commands : Using Locate, using Find and Seek, Locate and Continue, using Set Filter with commands

INTRODUCTION TO REPORTS

The report box, producing selective reports with ease, generating reports with commands, designing custom columnar reports : the report layout, making changes to the reports design, moving and sizing fields, using the toolbox design tools, saving and running the report

LIST OF PRACTICALS

1. Creation of a database structure and entering data in it by using Append Command.
2. Creating a database and executing various commands like Edit, Change, Browse, Replace commands.
3. Creating a database and executing various commands like Delete, Copy, Seek, Locate, Find, Goto on it.
4. Sorting a database on two or more fields for a database file.
5. Creating single independent compound and structural index file.
6. Creation of report using Report Writer.

WINDOWS & MS-OFFICE

Windows- 95

WINDOWS BASICS

Important features of windows, Operating system, Differences between windows 3.x windows 95, difference between DOS and windows operating systems, differences between a window and a dialog box To start windows, To Exit windows.

Meaning of the following terminologies : Desktop , active desktop , applet, cursor , driver , icon, windows , recycle bin , clicking , dragging , dialog box , dropping . Concept of file and folders , To create new folder , To rename an existing folder, To delete a folder. To create new file, To rename an existing file, To delete a file, To copy a file from one folder to another. To move a file from one folder to another, To display file names of a folder, To add, use and delete fonts.

WORD 97

Introduction to Word 97

To start MS-Word, To exit Word, Introduction to basics of word, use of toolbars, to display, hide, move and reshaping toolbars, to display and hide status and scrollbars, the rulers.

To create a new document, to save new document, to open a non-word document, to save a document under the same name and different name. To save a document in a different format, To use print preview, to print a document on paper.

To format a document

Character formatting, line spacing, tab setting, margin setting, setting of a page size, setting of paper orientation, setting alignment of text, to insert special characters.

Editing a Document

To select a text from a current document, to insert a word, and a line in the document, To copy and move a selected text from one place to another place within a document. To copy a selected text from one document to another. To insert a document from a file into the current document. To use find and replace facility.

Printing of a Document

To use print preview, to print a part of a document, to print a complete document, to print labels and envelopes.

Special Features of WORD

To check spelling and grammar, to use thesaurus, to use autocorrect, autotext and mailmerge.

EXCEL 97

Uses of Excel in commerce, to start Excel, to exit, Excel basics : Excel windows worksheet, workbook, cell , active cell, cell reference, types of data used in excel.

To create and Edit entries:

To enter text and numbers, to retrieve text and numbers, to select cells, to copy and move data, to delete cell contents, to find and replace data.

To work with Workbook files

To create a new workbook, to save and name a workbook, to open and close workbook files, to find a workbook file, to move from one workbook file to another workbook file.

To work with worksheets

To select, insert and delete worksheets. To copy and move worksheets.

To work with ranges

Meaning of a range, to create, select and name a range. To format a range, to copy and move ranges.

To edit cells

To insert cells, to delete cells, to merge cells, to insert rows and columns, to delete rows and columns, to change columns width and row height, to format data values.

To perform calculations with formulae

Meaning of a formulae, order of operations, to enter a formula, to revise a formula, to display a formula, to copy a formula, types of cell reference, absolute, relative and mixed.

To perform calculations with functions

Meaning of a function, built-in functions

RATE(), FV(), PMT(), ABS(), INT(), MOD(), SQRT(), SUM(), SUMPRODUCT(), POWER(), QUOTIENT(), MID(), REPT(), LEN(), VALUE(), UPPER(), LOWER(), TRIM(), DCOUNT(), DMAX(), DMIN(), DSUM().

To work with databases

Basics of databases, to use forms, to add, edit or delete records, to extract data, to transfer data from other database.

To print a worksheet

To preview a worksheet, to set margins, to set page layout, to print a part of worksheet, to print complete worksheet, to print a workbook.

To work with macros

Meaning of macros, to create macros, to save macros, to execute macros.

PRACTICALS

1. Starting of Windows 95 and study of various elements of Windows 95
2. Introduction to Ms-Office and study of its elements.
3. Create a document to write a letter to your friend to give invitation of your birthday party using various options provided by Ms-WORD.
4. Create a document to insert a table with proper data using various options provided by MS-WORD.
5. Insertion of a document into the another document.
6. Use of Mail-merge in a document.
7. Create and print worksheet of a given type.
8. Create a worksheet and study various built in functions.
9. Create and print worksheet using functions.
10. Create and print worksheet for the mark list.
11. Create and print a worksheet for electricity bill.
12. Creation of a Macro.

From : July, 1999

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INTRODUCTION TO OBJECT ORIENTED PROGRAMMING AND C++

INTRODUCTION

Structured Programming approach & features, Object Oriented approach & features, Overview of OOPS Languages, Need of OOPS

BASIC CONCEPT OF OOPS

Objects, Classes, Messages, Abstract data type, Data Hiding, Data encapsulation, etc.

ADVANCE CONCEPT

Inheritance, Dynamic binding, Polymorphism, OOPS paradigm, Reusability & extensibility, Generality etc.

C++ PROGRAMMING LANGUAGE

ELEMENTS OF C++

Comments, Header file, Input Output Stream, Manipulators, Data Types: Enumerated data type, Operators & expression, type conversion, Control statements - while, Do...while, for, if, if...else, switch etc.

STRUCTURE

Introduction, Structure features, Structure with in structure, Union in C++.

FUNCTION

Simple Function (Concept of argument passing & returning, Reference arguments), Overloaded Function, Inline Function, default arguments, Variables and Storage Classes.

OBJECT & CLASSES

Simple Class (Class specified, C++ objects, accessing class members, Memory allocation to object, static class data), Constructors and Destructors, Constant member functions, passing arguments as objects and returning.

OPERATOR OVERLOADING

Introduction, overloading unary and binary operators, concatenating strings, multiple overloading comparison operators, arithmetic assignment operators, data conversion between objects and basic types.

INHERITANCE

Derived class and base class, derived class constructors, class hierarchies, public and private inheritance, multiple inheritance, containment - classes within classes, inheritance and program development.

POINTERS

The Delete and New Operator, Pointers to object, An array of pointers to objects, pointers to pointers, debugging pointers, difference between pointers and references.

VIRTUAL FUNCTIONS AND OTHER SUBTLITIES

Virtual function, pure virtual functions, friend functions, static functions, assignments and copy-initialization, the copy constructor, the this pointer, abstract classes

INTRODUCTION TO TEMPLATES AND EXCEPTION HANDLING, FUNCTION WITH TEMPLATES

FILES AND STREAMS :

Streams, String I/O, Character I/O, File pointers, error handling, redirection, command line arguments, pointer output, overloading the << and >> operators.

LIST OF PRACTICALS

1. Write a C++ program for calculating sum of n numbers from 1 to n.
2. Write a C++ program to convert temperature in Fahrenheit to Celsius.
3. Write a C++ program to calculate a simple interest and compound interest.
4. Write a C++ program to sort a given array in ascending/descending order.
5. Write a C++ program to find the number of characters appeared in given string.
6. Write a C++ program to check whether the given string is palindrome or not.
7. Write a C++ program to read names of customers and number of units consumed and printout their charges with name. The rate charged by electricity board are

For first 100 units	40 Paise per unit
For next 200 units	50 Paise per unit
Beyond 300 units	60 Paise per unit

All customers are charged a minimum of Rs. 500. If total cost is more than Rs. 250/- then additional charge 15% is added.

8. Define a class to represent bank account. Include following members

Data members

Name of Depositor

Account Number

Type of Account

Balance

Member Functions

To assign initial values.

To deposit an amount.

To withdraw an amount by checking balance.

To display name and balance.

Write a program to implement the above class.

9. Define a class string. Overload == operator to compare 2 strings

10. Perform object oriented analysis of your college employees. Develop classes according to objects (class should contain data as well as methods to modify that data). Write a C++ program to code the system at an elementary level including facility to store and retrieve records.

11. Implement the class matrix and define method for matrix multiplication.

12. Write a program in C++ to display the following results using File Handling.

Roll No.	Name	Mark1	Mark2	Mark3	Total
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DCP -2nd year

Paper -V

PROGRAMMING IN FOXPRO

INTRODUCTION TO FOXPRO PROGRAMMING

Creating command files, compiling, constants, memory variables, expressions, operators, mathematical operators, relational operators, logical operators, string operators

FUNCTIONS

EOF, BOF, DATE & TIME, UPPER, LOWER, CTOD & DTOC, DTOS, SPACE, TRIM, LTRIM, STR

COMMANDS USED IN COMMAND FILES

Set Talk, Skip, Return, Accept and Input, Const, Sum, Average, Total, @?, ?? & Text

Creating Applications with Foxpro : Starting FoxApp, Relating a File, Creating a Screen, Generating the application, Using the application : making changes to records, generating reports, other menu functions

PROGRAM CONTROL

Do.. While, Do Case... Endcase, Loop, Return, For, Scan & Endscan,

If..Else... Endif : Nesting If..Endif, Using the If..Endif statement

Using Case to evaluate multiple choices : Exit, Cancel, Wait, Zap

PROGRAMMING FOR DATA ENTRY AND EDITING

Putting information on the screen : using Get and Read with @ Say, Working with memo fields, customizing a data entry screen

Using Picture : Using format files, using windows

Defining the windows : Activating and using the windows, deactivating the window, Designing light-bar menus with @ Prompt and Menu To

Editing records under program control, Data editing and entry with memory variables, Deleting records under program control

PROGRAMMING FOR DATA RETRIEVAL

Generating reports from stored report forms, user choice : reporting to the screen, writing reports with program code

ADVANCED PROGRAMMING TOPICS

Hiding and showing variables, debugging techniques : using Set Talk, Using Set Echo, using Set Alternate

Customizing foxpro with Set Commands : Set Bell, Set Carry, Set Console, Set Date, Set Decimals, Set Escape, Set Exact, Set Near, Set Function, Set Memo width to, User defined functions

LIST OF PRACTICALS

1. Writing a program to add records in a database file.
2. Writing a program to edit the records in a database file.
3. Writing a program to delete the records from a database file.
4. Writing a program to print the records of a database file.
5. Writing a program to prepare and display a table with suitable titles giving interest and amount on a given fixed principal, fixed time and varying rates of interest.
6. Use of procedure and function.

DCP 2ND YEAR

PAPER - VI

PROGRAMMING IN VISUAL BASIC

THE VISUAL BASIC ENVIRONMENT

Introduction to GUI , Why Windows and Why Visual Basic, Event based Model of Visual Basic , How to start VB, Overview of Developing a VB Application , Initial VB Screen , SDI Environment , Toolbar , Toolbox , Help System, Use of different menus of Visual Basic's initial screen

ELEMENTS OF TOOLBOX

Command buttons , Image controls , Text Boxes, Check Boxes , Radio Buttons , Frame Control , Scroll Bar , List controls , Labels. Starting New project , Introduction to form . creating different controls in project .

USING PROPERTIES WINDOW.

Changing properties of Various controls that are used in project .

Default property , Boolean Property, Name , Label , BackColor , ForeColor Caption , Font , Height , Width , Visible , ToolTipText , Left , Top , Text , MultiLine , ScrollBars etc.

DIFFERENT EVENTS FROM VISUAL BASIC

Click , DblClick , Change , MouseMove , MouseDown , Change etc.

Using Code Window, Message Boxes , Input Boxes ,

Variable Types , Declaring Variables , Scope of variables, Declaring Constant , Operators : Arithmetic , Relational .

USING DIFFERENT BUILT-IN FUNCTIONS FROM VB

Format , Val , Str , Chr , Date , Len , Ltrim , Rtrim , Ucase, Lcase , RGB , Strcomp, Rnd , Numeric Functions , Financial Functions , etc.

USING DIFFERENT CONTROL LOOPS TO CONTROL THE PROGRAM FLOW

For loop , Nested for Loop , Do - Loop - Until , Do - While , While Wend ,

If - then , If - Else , Select Case .

PROCEDURES AND FUNCTIONS

Declaring User - Defined Functions And Procedures , Trapping different Errors .

CONTROL ARRAYS

Adding & Removing controls in a Control Array , One Dimensional Array , Using Dynamic Lists , Arrays with more than one Dimension , Using Records , With Statement, Enum .

CREATING CLASS MODULE

Creating user defined class.

CREATING MENUS IN A PROJECT MODULE

Using Menu Design window, using Common dialog boxes , Using Custom Controls .

INTRODUCTION TO GRAPHICS

Lines , Boxes , Circles , Ellipses , Curves, Pixel controls, Shape controls .

WORKING WITH FILES

File commands , File System controls , Sequential controls , Random-Access files , Binary files.

USING DATABASE FEATURES

Introduction to Modern databases , Using Data control , Programming with Data control , Accessing Data from Databases such as Foxpro , Dbase IV.

LIST OF PRACTICALS

1. Write a VB program using various Controls from Toolbox.
2. Write a VB program to make use of different built functions.
3. Write a VB program using various control loops.
4. Write a VB program to create a Scientific Calculator.
5. Write a VB program using a user defined function / Procedure.
6. Write a VB program to Create a user defined Class and make use of it in a program.
7. Write a VB program using a Control array.
8. Write a VB program using menus pop-up menu.
9. Write a VB program using various events provided by VB.
10. Write a VB program to access data using Data Control.
11. Write a VB program using various graphical controls.
12. Write a VB program using file handling functions.

Introduction To Desktop Publishing(DTP)

Meaning of desktop publishing, Distinction between traditional and desktop publishing. Essentials of DTP - Input devices, output devices, software.

Meaning of page layout, Type, parts of pagelayout, meaning of terms : point, pica, leading, font, grid, gutter, margins, caption, ascender, counter, baseline, capline, hyphanation, tracking, Kerning, different types of type faces, meaning of alignment, types of alignment.

Pagemaker 6.5

To start page maker, exit page maker, components of page maker window, open a new document, open an existing document, view a page, create a new document, setting margins, page size, page orientation, ruler measurement system, use of guide lines.

Entering a text :- Opening a text block, moving a text block, resizing a text block.

Formatting type :- Changing font families, font sizes & typeface styles.

Changing character specification :- changing type leading, character width, tracking, type options.

Saving a document :- Saving a new document, saving an existing document, saving a document to another document.

Editing text :- deleting text, cutting, copying & pasting text, inserting and removing pages, adjusting spacing of characters, words and lines, importing a document.

Use of graphics :- Importing graphics, copying and moving graphics, resizing a graphics, creating graphics.

Powerpoint-97

Powerpoint Basics :

Use of powerpoint in business, to start powerpoint. To exit powerpoint, introduction to powerpoint window.

To work with presentation

To create a new presentation, to view a presentation, to change views, to close a presentation, to save a presentation, to open a saved presentation.

To edit presentation

To maximise a window, to show titles to select text, insert text, to move a text, delete a text, to replace a text, to check spelling, to create a new slide, to move between slides, to create a new presentation, to save a presentation, to view a presentation.

To add objects :

To change slide layout, to add a new slide, to add clip art, to add a graph, to change graph type.

To enhance presentation :

To edit text in slide view, to move & size text box, to move and size object, to change text size, to emphasize text, to change font size, use of templates.

To finalize presentation :

To delete a slide, to reorder slides, to setup slides, to print a presentation.

Practicals

1. Creating a new document , inserting data and saving document in PageMaker .
2. Use of block operations in Pagemaker.
3. Creating a page layout for a document .
4. Use of spell checking, find and change facilities.
5. Creating and printing a table.
6. Creating news letter using 'n' columns.
7. Creating an advertisement .
8. Inserting graphics in a document.
9. Formatting a document.
10. Creating a presentation for information of a unit in power point.
11. Inserting a picture in a slide
12. Creating a moving slide presentation.