



North Maharashtra University, Jalgaon

***FACULTY OF COMMERCE &
MANAGEMENT***

**Course Structure
&
Syllabus of –**

D. C. A.

Diploma in Computer Application

W.E.F. Academic Year 2012-13



North Maharashtra University, Jalgaon

(NACC Re-Accredited 'B' Grade University)

FACULTY OF COMMERCE & MANAGEMENT

STRUCTURE OF D.C.A. (DIPLOMA IN COMPUTER APPLICATION)

W.E.F. FROM ACADEMIC YEAR: 2012-13

Sr. No.	Subject Code	Subject	Maximum Marks
1	1.1	Fundamentals of Computer and Internet	100
2	1.2	Introduction to Programming using C++	100
3	1.3	MS Access and Visual basic 6.0	100
4	1.4	System Analysis & Designing	100
5	1.5	Information System & Introduction to BPO	100
6	1.6	Practical	100
7	1.7	Project	100



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D.C.A. (Diploma in Computer Application)

1.1 Fundamentals of Computer and Internet

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[Total Lectures: 50]

A] Fundamentals of Computer

1. Introduction

- 1.1 History & generation of computer
- 1.2 Block diagram of computer system
- 1.3 Types of computers
- 1.4 Definition-Software, Hardware, Compiler, Interpreter
- 1.5 Characteristics
- 1.6 Applications

2. Data Representation

- 2.1 Number system: decimal, binary, octal and hexa decimal
- 2.2 Representation of integers, fixed and floating points
- 2.3 Character representation: ASCII, EBCDIC

3. Memory Concepts

- 3.1 Concepts of Memory cell
- 3.2 Types of memory
 - 3.2.1 Primary- RAM, ROM, PROM, EPROM
 - 3.2.2 Secondary - Magnetic disk, hard disk, CD-R/W memory, Pen drive

4. Input Output Devices

- 4.1 Input devices - keyboard, mouse, scanner, web camera
- 4.2 Output device - printers, plotters, LCD projector

5. Algorithm & flowcharts

- 5.1 Definition - Algorithm, flowchart
- 5.2 Flowchart symbols
- 5.3 Examples for constructing algorithm and flowchart for simple programs (Minimum 5)

6. Operating System Concepts

- 6.1 Definition, need and function of an operating system
- 6.2 Types of operating system
- 6.3 Comparative study of various operating systems

B] Internet

- 1.1 Introduction to Internet
- 1.2 Working of Internet
- 1.3 Applications of Internet
- 1.4 Study of Web Browsers
- 1.5 Search Engines
- 1.6 E-mail account - Creation, sending and receiving E-mails with attachments
- 1.7 Messenger Services, News Groups

References –

- Fundamentals of computer - V. Raja Raman (PHI Publication)
- Computer and commonsense - Roger Hunt and John Shelley (PHI Publication)
- Internet in easy steps - Dream tech Press



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1.2 Introduction to Programming using C++

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[Total Lectures: 50]

1. Introduction to C++

2. Data types, operators, expression and control structure:

Character set, tokens, identifiers, keywords, variables, operators, Control flow statements, expressions and qualifiers, operator precedence and associativity

3. Array, strings

Arrays, multidimensional array, strings, array of string, string functions.

4. Structures and Union

Structure declaration and definition, use of structure and union, difference between structure and unions

5. Function

Function component, parameter passing – pass by value, pass by address, pass by reference, inline function, scope and extent of variables, recursive function,

6. Pointers

Pointer variables, address operator & Runtime memory management, pointer to pointer, array of pointer, pointer constant, pointer arithmetic, pointer to function, pointer to objects, array of object, this pointer, self referential classes.

7. Preprocessor directives

#define, defining like macros, #error, #include

References:-

K.R. Venugopal, Rajkumar, T. Ravishankar, Mastering C++, TMH.

Balguruswamy, Object Oriented Programming C++, TMH

Bjarne Stroustrup, "The C ++ Programming Language ", 3rd edition, Pearson Education Asia, 2000



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1.3 MS Access and Visual basic 6.0

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[Total Lectures: 50]

Section 1 MS Access

1. Database

- 1.1. Relational database,
- 1.2. Determining tables,
- 1.3. Determining fields,
- 1.4. Determining relationships.
- 1.5. Integrity rules:
- 1.6. Primary/Foreign key, candidate key,

2. Working with database

- 2.1. Creating using wizards, Opening, closing.
- 2.2. Creating tables using wizards,
- 2.3. Design view, set relationship between tables, insert data into tables,
- 2.4. Storing data. Create Query using wizards & design view.

3. Introduction to forms

- 3.1. Types of basic forms,
- 3.2. Creating and customizing a form using form wizard,
- 3.3. Entering, editing, sorting and searching data.
- 3.4. Making simple design changes, filter records in form.

4. Introduction to reports

- 4.1. Types of basic reports, create a grouped or summary report, create and use sub reports,
- 4.2. Creating reports using report wizard steps of creating reports: layout, data model, query, report generation. Grouping level in reports,
- 4.3. Printing reports.
- 4.4. Use control layout on reports.

References

1. Mastering Access 2002 – Alan Simpson, Celeste Robinson. SYBEX published.
2. MS Access 2002 from A to Z – Julia Kelly & Stephan L. Nelson.
3. Firewall media Laxmi publication Pvt Ltd. ISBN : 8170083214
4. Teach Yourself Microsoft Access 2002 in 21 Days - Paul Cassel, Craig Eddy and Jon

Section 2 Visual Basic 6.0

1. Visual Basic

- 1.1. Need for Visual Basic,
- 1.2. Starting Visual Basic,

1.3. Overview of Visual Basic application development

2. The Visual Basic Environment

- 2.1. Initial VB Screen, Title bar, Overview of menu bar,
- 2.2. SDI(Single Document Interface Environment),
- 2.3. Toolbars, Toolbox, Properties Window,
- 2.4. Use of different menus of VB's initial screen

3. Working with forms

- 3.1. The Anatomy of a form, The Border, The Title Bar, The Caption,
- 3.2. The Control Menu,
- 3.3. The minimize, maximize and restore button, The close button,
- 3.4. Working with Form Properties,
- 3.5. Introducing Form Events, & Form Methods,
- 3.6. Multiple Document Interface (MDI) Forms

4. Selecting and Using Controls

- 4.1. Introducing Controls, Using Different Controls and their properties, & events
- 4.2. Command Buttons, Text Boxes, Labels, option Buttons,
- 4.3. Check Boxes, Frame Control, List Boxes, Combo Boxes, Image Objects, Picture Boxes
- 4.4. Timers, Scroll Bars, Drive Lists, Directory List Boxes, File List Boxes,
- 4.5. Tree View Control, List View Control, Image List Control, Status Bar Control,
- 4.6. Adding Other Controls to the toolbox

5. Understanding Data Types, Logic and Program Flow

- 5.1. Introducing variables, Variable Types, Working with a String , Scope of variables,
- 5.2. Using arrays, dynamic arrays and control arrays,
- 5.3. Using Constants, Operators in Visual Basic, Evaluating Conditions in Code, If.....Then.....Else Statements, The nested if statements, Select CaseEnd Select, Performing Repetitive Tasks , For...Next Loops, Do.....Loops, While....Wend Loops

6. Working with Modules and Classes

- 6.1. Introducing Code Modules and Classes, Creating Code Library, Creating a Code Module,
- 6.2. Working with Sub Procedures, Working with Function Procedures, Passing Parameters to Function and Sub Procedures, Using Private and Public Sub Procedures

7. Creating and Using Menus and Toolbars

- 7.1. When to Use Menus and Toolbars, Understanding the Menu Object, Menu Properties,
- 7.2. The Click() Event, Menu Methods, Creating a Menu with a Menu Editor
- 7.3. Creating Toolbars, Adding Buttons to Toolbars, Adding Images to Toolbars

8. Accessing Databases

- 8.1. Accessing Database, Data Control DAO, ADO, RDO, Visual Basic and Access Connectivity

9. Designing Reports

- 9.1. Introduction, Objective, Introduction to Report Designer, Creating Report, Data Report, Data Environment,

Reference

1. Visual Basic 6.0 By Gary Cornell
2. Visual Basic 6 By Steve Brown

3. Muvach's Visual Basic 6.0 By Muvach



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1.4 System Analysis & Designing

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[Total Lectures: 50]

1 .System Concept and Information

- a) System Environment
- b) The system concepts
- c) Characteristics of system
- d) Elements of System
- e) General Business Knowledge
- f) Problem Solving Skills

2.System Development Life Cycle

- a) Recognition of Need
- b) Problem Definition
- c) Feasibility Study
- d) Analysis
- e) Design
- f) Implementation
- g) Post Implementation and Maintenance
- h) Factors affecting the system
- i) SDLC Models – Waterfal, Spiral & RAD

3. System Planning and Initial Investigation

- a) Strategies for Determining Information Requirement
- b) Definition and Project Initiation Background Analysis
- c) Fact Analysis
- d) Review of Written Documents
- e) Onsite observations
- f) Interview and Questionnaires
- g) Efficiency Analysis
- h) Service Analysis
- i) Tools for Structured Analysis
 - i. Data Flow Diagram (DFD)
 - ii. ERD
 - iii. Data Dictionary

- iv. Decision Tree and Structured English
- v. Decision Tables
- j) Pros and cons of Each tool

4. Brief Introduction to Coding, Testing, Implementation & Maintenance

5. Introduction to CASE tool

Reference Books:

- Pressman, R. (1987). *Software Engineering: A Practitioner's Approach*, 2d ed. New York, NY: McGraw-Hill.
- STRUCTURED SYSTEM ANALYSIS AND DESIGN, ISRD Group ISBN: 9780070612044



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1.5 Information System & Introduction to BPO

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

[Total Lectures: 50]

Foundations of Information systems and Management: Need of Information systems, Components and resources of information systems, Information system activities, Types of information systems

Management Information Systems: Definition, role and impact of MIS, Introduction to Management, Approaches to Management, Functions of the managers: Management effectiveness, planning, organizing, staffing, coordinating and directing, MIS as a support to the management and a tool for management Process, Organization structure and theory: Organization structure, behavior, organization as a system

Applications of MIS in Manufacturing Sector, Banking and Insurance Sector

Enterprise Resource Planning (ERP) systems: Definition, need, basic features, benefits, selection, implementation Life Cycle.

Customer relationship Management: Introduction to CRM. Three phases of CRM, Benefits, challenges and trends in CRM

Electronic Commerce Systems: Introduction, scope, B2C, B2B and C2C

Business Process Outsourcing (BPO): What is BPO? Voice BPO i.e. Call center, non-voice BPO, Scope of BPO, challenges in BPO management.

Definition of KPO, Difference between BPO & KPO.

Reference Books:

1. O'Brien J., "Management Information Systems: Managing Information Technology in the Business Enterprise", 6th Edition, Tata McGraw-Hill Publishing Company Limited
2. Jawadekar W., "Management Information Systems", 2nd Edition, Tata McGraw-Hill Publishing Company Limited



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1.6 Practical

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Practical based on C++

- 1) Program using various arithmetic operators
- 2) Program using control statements (if, if else, nested if, switch)
- 3) Program using various looping structure (for, while, do while, nested loops)
(Programs like prime number, factorial of a number, Fibonacci series)
- 4) Program using arrays (One dimension, Two dimensions)
- 5) Write a program to demonstrate use of function (call by value, call by reference, recursive)
- 6) Write a program to demonstrate use various string function
- 7) Write a program to demonstrate use of pointers
- 8) Write a program to demonstrate use structure and union

Practical based on Ms Access & Visual Basic 6.0

1. Create Database and tables using wizard in MS Access
2. Set relationships between tables in MS Access
3. Create form using wizard in MS Access
4. Create grouped report in MS Access
5. Write a VB program using various controls from toolbox.
6. Write a VB program using various control loops.
7. Write a VB program to create a simple calculator.
8. Write a VB program using user define function/procedure.
9. Write a VB program using a control array.
10. Write a VB program using menus, pop-up menu.
11. Write a VB program using various events provided by VB.
12. Write a VB program to access data using Data Control



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1.7 Project

60 + 40 Pattern: External Marks 60 + Internal Marks 40 = Maximum Total Marks: 100

Group Project is not allowed.

Use of CASE tool is desirable.

Students have to submit Project Report in hard copies as well as in pdf format to the college & college should submit it to university.

Project Marking Scheme for D. C. A.

Marks are Out of 100 (Convert to out of 40 for internal and to out of 60 for external)

Criterion	Performance	Total marks	Marks given
Quantum of Work	Not enough for Project	0	10
	Just right	3	
	Good amount of work done	6	
	Very-good amount of work	10	
Understanding of project/task objectives	No understanding of project/task objectives	0	10
	Fair amount of understanding	3	
	Clear understanding of various aspects	6	
	Detailed understanding of the all aspects of the project	10	
Approach adopted	Technically inept, with no motivation to improve	0	10
	Reasonable level of skills demonstrated	3	
	Technical competence demonstrated	6	
	Outstanding demonstration of technical skills, creative approach	10	
Effort	No evidence of interest in the work	0	10
	Reasonably good effort	3	
	Conscientious effort	6	
	Excellent amount of effort	10	
Initiative and self-motivation	No Evidence	0	10
	Evidence of some contribution of ideas	3	
	Significant contribution towards developing/refining/doing the task allocated	6	
	Sufficient evidence of handling the tasks independently and efficiently	10	

Achievement of objectives	Not much progress	0	10	
	Adequate but not enough	3		
	Good progress and made best use of the opportunities present	6		
	Outstanding performance	10		
Report Content	Not Submitted	0	10	
	Mostly sound but a lot of scope of improvement	3		
	A very well structured report	6		
	Comprehensive and detailed report	10		
Presentation	Not presented	0	15	
	Okay, but not an overall understanding of what constitutes a presentation	5		
	Well presented	10		
	Very well presented, with clear understanding of goals	15		
Q & A	Not participated	0	15	
	Could handle but confused	5		
	Could handle competently	10		
	Could handle professionally	15		