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Post Graduate **Computer Application (B.C.A.)**
(P.G.D.C.A.) Exma. 2002-2003

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Barkatullah University, Bhopal

Syllabus for Session : 2000-2001

Post Graduate Diploma in Computer Science & Application (PGDCA)

Eligibility - Graduate in any discipline with 45% Marks.

This Course is a full time one year (Two Semester) course. In the first Semester there shall be four theory paper and one Practical and Viva-voce test. In the Second Semester there shall be three theory paper, one practical, one Project Report and Comprehensive Viva-Voce test.

SEMESTER - Ist

SCHEME OF EXAMINATION

	Maximum Marks	Minimum Marks
Paper-I Introduction to Information Technology	50	17
Paper-II Operating System	50	17
Paper-III P.C. Software	50	17
Paper-IV Object Oriented Programming in C++	50	17
Practical & Viva-Voce	100	33
Sessional	50	17
Total	350	118

PAPER-I INTRODUCTION TO INFORMATION TECHNOLOGY M.M. : 50

UNIT-I The word wide web, how it happens, connecting to web, browsing, locating information web multimedia, information system, software and data, IT in business and industry home and at play, education and training, entertainment and arts, sciences, engg., maths, computers in hiding, GPS. Types of computers systems and central processing unit.

UNIT-II Input and output devices, keyboard, graphics, inputting text, pointing devices, pixels & resolutions, fonts, the range of colour, screen types, resolutions, laser printers, colour printers, other printers. How data is stored, characteristics, floppy disks, hard disk drives, optical disk, increasing data storage, backing up your data, the smart card.

Software what is it, user interface, application program, operating system, types

file mgt., utilities, document centric computing major software issues, network computing.

UNIT-III

Entering and editing documents, other word processing features, formatting documents desktop publishing for print, screen, spread sheet applications, introduction, entering data, charts and graphs, Database application-introduction, principles of data storage, working with a database, queries, internet connectivity. Network applications-Fax, voice and information services, person to person communication, group communication, exchanging files, LAN - introduction, architecture, the exe system, WAN-Introduction, devices and media, protocols, high bandwidth personal connections.

UNIT-IV

Multimedia-introduction, paint and draw application, graphics effects & tech. sounds & music, video, multimedia authoring tools, presentation devices, sound & motion, video & television.

Corporate computing-introduction, transaction processing, information tools for management control, marketing, advertising, sales, design, production, manufacturing business on internet, virtual office, career, recent trends.

UNIT-V

Programs-introduction, first and second generation languages, programming languages procedural, methods, how programs are developed, programming tech., introduction, branching & looping, functions and decomposition, corporate development. Personal social and ethical issues.

Text Book :

1. Lanbert : Internet 101.
2. Alter : Information Systems.
3. Information Technology : The breaking wave Curtin (TMH)
4. Fundamentals of I.T. by Chetan Shrivastav, Kalpani Comp. Apply. is Business T.D.
5. Malhotra Dictionary of Computers by Sanjeev Sharma.

Computer Magazines

- | | |
|----------------|--------------------------|
| 1. C & C | 2. Comp. Today |
| 3. PC Quest | 4. Express Computers |
| 5. PC Magazine | 6. PC world. |
| 7. News Papers | 8. Central Computer Main |

PAPER - II OPERATING SYSTEM

M.M. : 50

UNIT-I

History of operating system : zeroth generation, first, second, third, fourth generation, Computer architecture : introduction, 4GL program, 3 GL program, 2 GL program, 1 GL, OGL, the context of a program, interrupts.

Operating Systems : Introduction different services, uses of system call, the issue of probability, user's view, the micro facility, GUI, the kernel, booting.

UNIT-II Information management : Introduction, file system, device driver, terminal I/O
Process management : Introduction, process, evolution of multiprogramming, context switching, process states, transition, PCB, process hierarchy, operation on a process, create process, kill process, dispatch process, change the priority a process, block, dispatch, time up, wake up, suspend/resume operation, multitasking. Inter-process communication : The producer-consumer problems, solution

UNIT-III Deadlocks : Introduction, graphical representation, prerequisites, strategies
Memory management : Introduction, single contiguous mgt., fixed portioned M, variable portions, non-contiguous allocation-general concepts, paging, segmentation, combined systems, virtual memory mgt systems.
Operating Systems : Security and protection

UNIT-IV Parallel processing : Introduction, what is it, difference between distributed and parallel, advantages, writing programs, classification, machine architecture.
Issues Case study- mach DG/UX

Operating system in distributed processing : Introduction, distributed processing, LAN environment and protocols.

Graphical user interface and the O/S : various concepts

UNIT-V Unix - A Case study : introduction, history & overview of UNIX; file system, data for process/MM, process states & transactions, execution and terminating a program in UNIX, using the system, process scheduling-memory management.

Netware-A CASE STUDY: various concepts.

Text Book : Nutt/ operating Systems (AVL).

PAPER-III PC SOFTWARE

M.M. :

- UNIT-I**
- | | |
|------------------------------------|----------------------------|
| 1. Computer appreciation and DOS : | 2. Computer application |
| 3. Disk operating system (DOS) | 4. Additional DOS Commands |
| 5. Configuring DOS and batch files | |

- UNIT-II**
- | | |
|---|---|
| 1. Window : (1) | 2. Windows Basics |
| 3. Windows accessories p = 5 (2)
(Wordpad) | 4. using file manager and program manager |

UNIT-III

1. Word :
2. Introduction to word
3. Editing a document
4. Move and copy text and help system
5. Formatting Text and paragraph
6. Finding and replacing text and spelling checking
7. Using tabs
8. Enhancing documents
9. Columns, tables and other features.
10. Using graphics, templates and wizards
11. Using mail merge
12. Miscellaneous features of word.

UNIT-IV

Excel : Introduction to worksheet and excel, Getting started with excel, Editing cells and using commands and functions, Moving and copying, Inserting and deleting rows and columns, Getting help and formatting a worksheet, printing the worksheet, creating charts, Using date and time and addressing modes, Naming ranges and using statistical, math and financial functions, Database in a worksheet, additional formatting commands and drawing toolbar, Miscellaneous commands and function. Multiple worksheet and Macros.

UNIT-V

Introduction to desktop publishing.
Overview power point
Computer viruses and E-mail.

Text Book:

1. Sagman - Microsoft office 2000 PTR.
2. PC Software for Windows Made Simple by R.K. Taxal
3. Computer Awareness and Applications - T.D. Malhotra

PAPER - IV - OBJECT-ORIENTED PROGRAMMING IN C++

UNIT-I

A. Introduction to Programming in C++.

- 1 Simple programs
- 2 The output operator
- 3 Characters and string literals.
- 4 String length.
- 5 Comments
- 6 Variables, Objects, and their Declarations.
- 7 Keywords and identifiers
- 8 Initializing in the declaration.
- 9 Chained assignments.
- 10 The semicolon.
- 11 Program style.
- 12 Integer types.

13 Simple arithmetic operators.

14 Operator precedence and associativity.

15 The increment and decrement operators. 16 Compound assignment expressions.

17 The char type.

B. Conditional statements and integer types

1 Input

2 The If statement.

3 The IF.....ELSE statement.

4 Relational operations.

5 Compound statements.

6 Keywords.

7 Compound conditions.

8 Boolean expressions.

9 Nested conditionals.

10 The SWITCH statement.

11 The conditional expression operator.

12 Scope.

13 Enumeration types.

UNIT-II

A. Iteration and Floating types :-

1 The WHILE statement

2 The DO...WHILE statement.

3 The FOR statement.

4 The BREAK statement

5 The CONTINUE statement

6 Real number types.

7 Type conversions.

8 Constants, variables, and objects.

B. Functions :-

1 Standard C-library functions.

2 User-define functions.

3 Test drivers.

4 Function declaration and definitions.

5 Local variables and function.

6 VOID functions.

7 Boolean function.

8 I/O functions.

9 Passing by reference.

10 Passing by constant reference.

11 Inline function.

12 Function scope.

13 Overloading.

14 The MAIN () AND EXIT () functions.

UNIT-III

A. Arrays :-

- 1 Introduction
- 2 Processing array
- 3 Initialization an array
- 4 Passing an array to a function
- 5 Type definition.
- 6 Multidimensional arrays.

B. Pointers and References.

- 1 Introduction.
- 2 References.
- 3 Pointers.
- 4 Derived types.
- 5 Objects and values.
- 6 Returning a reference.
- 7 Arrays and pointers.
- 8 The NEW operator.
- 9 The DELETE operator.
- 10 Dynamics array.
- 11 Using CONST with pointers.
- 12 Arrays of pointers and pointers to arrays.
- 13 Pointers to pointers.

UNIT-IV

A. Strings :-

- 1 Introduction.
- 2 Review of pointers.
- 3 Strings.
- 4 Strings I/O.
- 5 Some C library members functions.
- 6 Character function defined in <CTYPE H>
- 7 Arrays of strings.
- 8 The C-string handling library.

B. Classes :-

- 1 Introduction.
- 2 Class declarations.
- 3 Constructions.
- 4 Constructor initialization lists.
- 5 Access functions.
- 6 Private member function.
- 7 The copy constructor.
- 8 The class destructor.
- 9 Constant objects.
- 10 Structures.
- 11 Pointers to objects.
- 12 Static data members.
- 13 STATIC function members.

UNIT-V

A. Overloading operators.:-

- 1 Introduction
- 2 Overloading the assignment operator.
- 3 Overloading the arithmetic operator.

4. Overloading the relational operators.
5. Overloading the increment and decrement operators.

B. Composition and inheritance :-

1. Introduction.
2. Composition.
3. Inheritance.
4. Virtual functions and polymorphous.

REFERENCE :

1. C++ Primer - Lippman (AWL) ✓
2. Hubbard J. Programming with C+ by Mc Graw Hill.
3. Turbo C++ Techniques and Application by Ladd, BPB Publications.
4. Programming in C++ by Robert Lafore, BPB Publications. ✓

PRACTICALS :-

LABORATORY (C++)

1. Write a program to swap the contents of two variables with & without using temporary variable.
2. Write a program to print the fibonanci series upto a given no. of terms.
- Write a program to invert a 3 X 3 matrix.
- Write a program to multiply two matrixes.
- Write a program to create an odd magic square.
- Write a program to find all capital letters in a string.
- Write a program to convert upper case letters to lower case & vice versa in a sentence of mixed cases.
- Write a program to search a no in any array using the algorithms like sequential search etc.
- Write a program to check whether a string is a palindrome or not.
- Write a program to find area & volume of a box with & without using constructors.
- Design a class which has length & breadth as data members. Use members function to :
Set value for the sides from program i.e. Length & Breadth.
Read values from the key board.
Display the area of the rectangle.

2. Write a max function which accepts 2 numbers & find the maximum of two numbers the no given as the argument can be integer, float of double. Overload the max function so that main () calls the max function with different types of arguments.
3. Overload the volume function to find volume of
 - (a) Cube
 - (b) Cylinder
 - (c) Rectangle
4. Write a program to calculate area & volume of a triangle & circle using overloading.
5. Overload binary operator to add 2 complex nos.
16. Write a program to calculate factorial of a no. Through recursion.
17. Write a program to calculate roots of quadratic equation.
18. Write a program to create a data file to store Enroll no., Roll-on and marks.
19. Write a program to print a marksheet using above data file.
20. Write a program to print the following O/P.

9	1	10
8	2	11
6	3	12
5	4	13

(PC-SOFT)

1. Create a document using MSWord to write a letter to your for inviting him for your birthday party.
2. Use MS-Word to insert a table into the document.
3. Mail merge-using MS-Word.
4. Create a document using MS-Word for making a banner of your institute.
5. Create a document using excel for creating & saving a spreadsheet.
6. Creation & printing a pipe, bar chart & ling graph using Excel.
7. Use suitable formulas to sum & derive averages using Excel.
8. Printing a spreadsheet & also printing any part of it.
9. Create a document to generate an ordered list and an unrecorded list.
10. Create a document for addling fonts to text, heading titles & addition of graphics, formatting of text.

- a document to printing various graphs & presentation methods.
- a document to import word document in power point & modification.
- your CV using MS-Word.
- student database.
- marksheet to your graduation.
- a document to generate following output :

	No. of Seats	NRI seats
CS)	20	5
IT)	20	5
	20	5
CA	20	5

- a document for generating header & footer.
- a document using power point to make autocontent wizard.
- a document using power point to add animation effect to your slide.

Barkatullah University, Bhopal

(Syllabus for Session : 2000-2001 & onward)

1st Graduate Diploma in Computer Science & Application (for colleges)

Semester Second Session 2002-2003

		Maximum Marks	Minimum Marks
Per-I	Internet Engineering	50	17
Per-II	Visual Basic & Oracle	50	17
Per-III	Software Engineering	50	17
Per-IV	Project Report & Viva-voce	100	33 36
	Practical & Viva-voce	70	24
	Sessional	30	10
Total		350	118

Int & Web Design

INTERNET ENGINEERING

Maximum Marks : 50

Internet structure, protocols and access with an eye to intranets- overview, internet protocol model overview, internet address, internet protocol, transport layer, upper layer protocols, internet access internet applications, future.

Router Technology - Introduction, network fundamentals, internet routing, new development, router market.

Internet and internet web server technology, access and protocols, HTML technology, applications and examples.

Operating Systems for the web, the internet, and the intranets.

Designing a corporate web site: Practical issues on servers and application software.

Internet services: Technology, Application, and Vendors.

Security and Communication for the internet and intranets.

Virtual reality application on the internet and intranets-virtual reality technology and evolving virtual reality applications. Opportunities for corporate education/marketing opportunities for marketing and business applications, intranets next killer application.

Chengyong
Chengyong

Engineering: Technologies, Protocols and applications by MINOLI (TMH)

Marketing by Vard Hanson.

1. BASIC & ORACLE

Max. Marks. 50

Concepts: Introduction to Network: Hierarchical; Relational models; DBMS; Oracle's DBMS Components (overview); Normalization (1,2,3rd); ER

SQL: Invoking SQL *Plus, The Oracle Data Type, Two Dimensional Query, Insertion of Data into Tables, Updating the Contents of Table, Joins, Operations: The many faces of the Select Command, Modifying the structure

Inserting/Deleting/Dropping Tables, Data Constraints, Computations in

SQL, Logical Operators, Range Searching, Pattern Matching, Grouping Data from Tables in SQL, Manipulating Dates in SQL, Translating an English Sentence with Data from Table Columns, Subqueries, Inner Join and Minus Clause Indexes, Views, Sequences, Granting and Revoking the Permission given, Creation of Reports in SQL "Plus".

PL/SQL: The PL/SQL Execution Environment, The PL/SQL Syntax, The PL/SQL Block Structure, Oracle Transactions, concurrency Control, Locks, Cursors, Error Handling in PL/SQL.

Visual Basic Programming Environment: Menu Bar, Toolbars, Project Properties window, form Layout window, Object Browser, Conceptual development and event - driven programming.

Visual Basic Fundamentals: Modules, Data types, Variables, Constants, Arrays, Control Structure, Built-in functions.

Form and controls: Using form template: Creating and using controls, Properties of control, method, Control arrays, Menu editor, Pop-up menus, Mouse events, Dialog boxes, Modal Dialogs, Debugging Tools, Handling runtime Errors, Graphical controls, Multiple Document Interface (MDI), Creating a toolbar, Creating statusbar, Active X Controls, Calling API functions from VB.

Visual Basic Reference (TMH)

Visual Basic Byross (BPB)

Visual Basic Programming & Optimization by Edward Whalen (SAMS)

Visual Basic Project Report & Viva - VOI

Visual Basic Round up, by Gary Cornell (TMH).

Visual Basic 6.0 Mohammed Azam.

Visual Basic Norton.

RE ENGINEERING

Maximum Marks : 50

to Software Engineering : Software characteristics & components, paradigms, software consideration, Software projects planning, matrices productivity & quality, various project estimation techniques & software tooling.

t Analysis : Analysis principles, complexity measures, object oriented software prototyping & specifications, various requirement analysis range & processing time analysis, database requirements.

esign process : Design fundamentals, top down & bottom up design, presentations, modular design, architectural design, procedural design, design, data structure oriented design, object oriented design, real-time software tools.

Implementation language & coding, language classes, coding style, coding software quality assurance, software testing techniques, software testing comparison of test methods, choice of test data, classification of tests.

aintenance & management : Maintenance characteristics, software, maintenance & task, maintenance organization, maintenance side issue, software configuration management (SCM), SCM process & tools.

ing - by Roger S. Pressman (TMH.) ✓

ing Fundamentals - by Behforroz.

ing - by Ian Sommerville (AWL).

e Requested to set two questions from each unit.

CT REPORT & VIVA - VOCE

M.M. : 100

VOCE -

M.M. : 70

ty papers.

BARKATULLAHUNIVERSITY, BHOPAL

- P.G.D.C.A

- II

- Internet and Web Design

- Internet and Web Design / *Internet & Web Design*

- I

*अन्तर्जाल से सम्बन्धित
पत्रिका*
MM : 50

-I Introduction to Internet & World Wide Web. Introduction Addressing, Browsers, URL, Web Server, Web Site, Homepage, Domain Names-Basic concepts, Facilities available over the Internet -email, www, ftp, telnet, Usenet, blog, irc, chat. Components of Internet - client-server, modem, cable, modem, backbone, router, IP addresses, address classes, DNS names, subnet, UDP & TCP, Uses of Internet.

-II Internet: Evolution, Concepts, Internet Vs Intranet, Growth of Internet, ISP, ISP in India, Types of connectivity - Dial-up, Leased line, DSL, Broadband, RF, VSAT etc., Methods of sharing of Internet connection, Use of Proxy server, Concept of Search Engines, Search engines types, searching the Web, Web Servers
E-Mail: Concepts, POP and WEB Based E-mail, merits, address, Basics of Sending & Receiving, E-mail Protocols, Mailing List, Free E-mail services, e-mail servers and e-mail clients programs

-III

Introduction to HTML-HTML Overview, Structure of HTML documents, Types of Documents, HTML Elements and Attributes, Basic Formatting of HTML Documents, layout - Font, Lists, Paragraph, Break Rule, Horizontal Rule, Colors, Backgrounds, text elements, <PRE>, etc., Links in html - anchor element and its attributes, images and anchors, using META

information. HTML media Types - media like element
<MARQUEE>, Audio & Video support in web browsers

UNIT-IV

Advanced Layout: Tables, Frames, Layers.

Tables - layout, elements and attributes, ROWSPAN, COLSPAN

Frames - Using frames, layout of frames, problems using frames

Layers - Concepts of layers, Positioned and Inflow Layers

UNIT-V

Style Sheets - Basic Concepts of Style sheet, using style sheet

Cascading Style sheets (css), using style sheets - basic
properties, positioning with style sheets. Basic interactivity in

Concept of Forms, <FORM> element, attributed. Controls

for forms, examples of form, examples of form design

Text Books and Reference Books :-

1. Internet For Everyone by Leon Alexm, Matthews Learning Technology
2. Web Design - The complete Reference by Powell - TMH