

H.D. JAIN COLLEGE, ARA



BCA

BACHELOR OF COMPUTER APPLICATION



Under
VEER KUNWAR SINGH UNIVERSITY
ARA

Approved by Raj Bhavan, Patna, Bihar
&
Govt. of Bihar

Information Brochure
DEPARTMENT OF COMPUTER APPLICATION



Approved By

Veer Kunwar Singh University, Ara

BCA

BACHELOR OF COMPUTER APPLICATION

SIX SEMESTER FULL-TIME DEGREE HONS. COURSE

" A Revolutionary Leap Towards Digital Excellence"

Dr. Narendra Kumar

Principal-Cum-Director

H.D. JAIN COLLEGE, ARA

(A Postgraduate Unit of Veer Kunwar Singh University, Ara)

Tel : 06182-239178

From the Director's Desk

Bachelor of Computer Application is an undergraduate three year degree course in computer application that is designed to introduce students to the world of computer languages. The course is approved by Academic Council, Syndicate and Senate of Veer Kunwar Singh University, Ara.



The B.C.A. Course is a roadmap to technological leadership and serves to strengthen aspirants in the field of computer science and Information Technology. The introduction of B.C.A. Course will serve this purpose and thus contribute to a global vision of the world of digitalization.

The B.C.A. Course runs under the supervision of a team of highly qualified and motivated teachers associated with the development of vocational courses in the college. We are committed to ensure quality education and the highest standard of excellence in their courses. For the upgradation of the course, the syllabus is subjected to revision at frequent intervals so that the excellence of the course is maintained. The academic programme will be assessed by combination of assessments like formal examination, project report preparation, internships etc.

I hopefully believe that the B.C.A Course at H.D. Jain College, Ara under Science Department will soon attain excellence in the field of Computer studies.

Dr. Narendra Kumar
Principal – Cum – Director
B. C. A.
H. D. Jain College, Ara

DEPARTMENT'S MISSION

- ★ To shape prospective computer professionals by imparting analytical concepts and implementing it to real time software projects.
- ★ To develop entrepreneurial skills in young technocrats for better career prospects and development.
- ★ To provide a cost effective base for pursuing comprehensive education programme to develop Computer/IT knowledge and skills along with the essential ingredient of entrepreneur attitudes and orientation.
- ★ To help students discover their dormant qualities and hitherto unrealised potentiality so that they may feel inspired to set the highest goals for their life and achieve them.
- ★ To develop human values and appropriate behavior and non technical competencies.

SEMINAR LIBRARY: The seminar Library of the department has extensive collection of about 200 books on various topics covering the whole syllabus of BCA of standard writers & publishers. Computer Journals and periodicals are also a part of seminar library stock. Department is regular subscriber of the following Computer Magazines:

- 1.Digital
- 2.Computer Today.



ATTENDANCE POLICY:

Regular attendance in all classes, seminars, symposia, case discussion, field trips, periodical test, etc. is compulsory and 100% attendance is desired. The students will have to fulfill the condition of 75% attendance. No students will be permitted to appear in final Univ. Exam unless he/she fulfills the condition of 75% attendance in each subject/paper.

DRESS CODE OF THE DEPARTMENT:

With the objective to develop a sense of uniformity, quality and proper personality development a Dress Code has been prescribed by the Department. Students of the department are expected to come in the department in the prescribed dress code.

SUMMER UNIFORM			
FOR BOYS/GIRLS		FOR GIRLS	
i. SHIRT	- Full Sleeve white shirt with tie collar	(a) KURTA	- Grey Knee-length Kurta normal wreath
ii. TROUSERS	- Grey trouser with normal wreath	(b) SALWAR	- White Salwar
iii. NECK TIE	- Black neck tie	(c) Dupatta	- White
iv. SHOE	- Black executive shoe	(d) SHOE	- Black executive shoe
v. BELT	- black with simple buckle	(e) BELT	- Black with simple buckle
WINTER UNIFORM			
FOR BOYS		FOR GIRLS	
Along with the combination of summer Uniform NAVY BLUE DOUBLE BREASTED BLAZER		Along with the combination of summer Uniform NAVY BLUE DOUBLE BREASTED BLAZER	

ELIGIBILITY FOR ADMISSION:

Admission to the 1st Semester BCA Course shall be open to the candidate who have Intermediate/Senior School/Certificate examination or equivalent. Accepted by the academic council of V.K.S.University, Ara, with **Mathematics/Business Physics/Computer Science/Computer Applications** as one of the subjects with 45% marks in aggregate.

SELECTION METHODOLOGY:

The selection methodology will comprise written test and personal interview. From next session (23-26) Written test shall comprise of objective questions in

- 1.Arithmetics
- 2.Current Affairs
- 3.English
- 4.Reasoning

RESERVATION POLICY IN ADMISSION:

Reservation for ST/SC/EBC/OBC/BCW/EWS as per University & Govt. of Bihar rules shall be provided on submission of authentic documents. Aspirants are advised to clearly mention the Categories i.e. GEN / EBC / SC / ST / OBC / BCW / EWS on the top of the application form to Entrance Test booklet. If aspirant is to seek admission on reserved category he/she should specify name of the caste also.

Certified Copies of the following are required along with form:

- (a) Marksheet of the qualifying examination.
- (b) Caste certificate issued by appropriate authority.
- (c) Two Stamp Size Photographs.

REGISTRATION:

The selected and enrolled regular students of BCA course shall have to get themselves registered with the Veer Kunwar Singh University, Ara on payment of requisite fee however, those who have already been registered with the Veer Kunwar Singh University need not apply for it. The Candidate coming from other university shall have to deposit emigration fee also. The students who are not registered with the Veer Kunwar Singh University shall not be allowed to appear at the university examination.

Students of BCA programme shall have to appear at the university exam at the end of each semester. The examination will be conducted by the Veer Kunwar Singh University, Ara.

EXAMINATION:

The semester end examination shall be conducted by Veer Kunwar Singh University, Ara. For completion of BCA Degree candidate shall have to appear and clear all the Six Semester University Exams conducted at the end of each Semester i.e. in the months June & Dec. Semester -1, II, III, IV, V & VI. Before appearing in BCA Semester VI, a Candidate shall have to clear all the papers of BCA Semester-1, II, III, IV & V.

AWARD OF DEGREE:

After successful completion of the three years BCA Degree Semester - 1, II, III, IV, V & VI courses appropriate degree will be conferred on the examinee by Veer Kunwar Singh University, Ara.

INFORMATION BROCHURE & APPLICATION FORM:

Information Brochure with application form for admission may be obtained from Department of BCA or College counter on cash payment or Rs. 500/- Five Hundred (non-refundable)



The applicant should go through the instructions given in the Information Brochure before filling the Application form. Complete application form along with attested photocopies of all required certificates/documents shall be submitted to **The Co-ordinator, Department of Computer Application, H.D. Jain College, Ara** on or before the fixed date.

INVITATION OF APPLICATION FOR ADMISSION IN BCA:

The department/College invites application on its prescribed format for admission process generally in the month of May/June each year. Advertisement for application and dates of admission process is flashed through leading News papers and College Notice Board.

FEE STRUCTURE :

₹8000.00 (Eight thousand only) per Semester. Examination Fees, Registration Fees extra per University Rules

MODE OF PAYMENT:

Payment of fee and other charges should be preferably made by crossed Bank Draft payable to BCA Fund A/c, H.D. JAIN COLLEGE, ARA, payable at Ara. At the time of admission in the 1st Semester 12000/- (Twelve Thousand) have to be paid. The rest amount is to be paid on the commencement of 2nd Semester.





VEER KUNWAR SINGH UNIVERSITY, ARA

BACHELOR OF COMPUTER APPLICATIONS (BCA)

COURSE STRUCTURE & SYLLABUS

SEMESTER-I

Group A : (Theory Group) Theory papers to be examined by university through examination conducted at the end of semester.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	1BCA1	Fundamental of Computer	100	40
2.	1BCA2	PC Packages (Win98/XP / Word, Excel)	100	40
3.	1BCA3	Programming Logic & Design Techniques	100	40
4.	1BCA4	Programming in C	100	40
5.	1BCA5	Communicative English	100	40
Aggregate Marks			500	200

Group B : (Practical & Continuous Evaluation) Sessional work papers to be evaluated internally, however during computer Lab test at least two external university examiners must be present. Evaluated answer sheet and marks foil shall be forwarded to the University Controller of Examinations.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	1BCA6	Internal Assessment & Term Work	100	45
2.	1BCA7	Programming in C	100	45
3.	1BCA8	Communicative English	50	23
Aggregate Marks			250	113

- | | | | |
|---|---------------------------|------------------|------------------|
| (a) | Group A (Theory Papers) | Full Marks : 500 | Pass Marks : 225 |
| (b) | Group B (Sessional Works) | Full Marks : 250 | Pass Marks : 113 |
| Aggregate Marks of 1 st Semester : 750 | | | Pass Marks : 338 |

SEMESTER-I

1BCA1

Fundamental of Computer

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS:

1. Introduction
2. Classification of Computers
3. Data Representation
4. Overview of Computer Architecture & Organisation
5. Overview of File System

- UNIT 1. Introduction to Computers** - Data • Information • Importance of Data and Information • Information Society and Information Economy • Computing Technology • Definition of Modern Day Computers • History of Computing (Napier's bone, pascal, difference engine etc.) • Definition of Information System and Information Technology • Multimedia.
- UNIT 2. Classification of Computers**- Digital vs Analog Computer • Generation of Computers • General Purpose vs Special Purpose Computers • Micro-Mini-Mainframe-Super Computer • Single User-Multiuser System.
- UNIT 3. Data Representation** : Number System-Decimal Number System • 9's and 10's Complements • Binary Number System • Binary Arithmetic 1's and 2's Complements • Decimal to Binary Conversion • Binary to Decimal Conversion • Octal Numbers • Hexadecimal Numbers • Binary coded Decimal System • Alphanumeric Code System (ASCII, EBCDIC) • Bit • Byte.
- UNIT 4. Overview of Computer Architecture and Organization**: Definition of Computer Architecture • Definition of Computer Organization • Structural Components of Computer System (CPU, ALU, Registers, CPU Interconnection) • Basic Block diagram of Computer • Basic Functions of Computers (Data Processing, Data Storage, Data Movement Control) • Major Components of Computer System (Hardware, Software) • Application Software • System Software • Compiler and Interpreter and Assembler • Output devices-Monitor, Printer (Impact, Non-Impact and Line, Dot Matrix, Laser, Drum and Chain Printers etc.) • Memory organization -registers, cache, Primary and Secondary Memory • Memory associated concepts-Tracks, Sectors, Seek Time, Latency time Access time • Static RAM • Dynamic RAM • Input-Output Organisation • Programmed - I/O, Interrupt driven I/O, DMA • Input • Devices - (Keyboard, Mouse Joystick, Scanner, MICR, DMR, etc.)



UNIT 5. Overview of File System in Computers • Files • Directories • Types of Files • Commands • Internal and External Commands • Concepts of Path (Absolute & relative path) • File Management Commands of some common Operating Systems (Copy, Type, Xcopy, Edit, le, cd, md, cat, vi etc.)

REFERENCE BOOKS

- | | |
|---------------------------------------|--|
| 1. Computer Today | by S.K. Basndra, Pub. Galgotia |
| 2. Computer Fundamentals | by P.K. Sinha, Pub. - BPB |
| 3. Computer Fundamentals Architecture | by B. Ram, Pub. Vikash Publication House, New Delhi and Organisation |
| 4. Peter Norton's Dos Guide | by Peter Norton Pub. - PHI |

1BCA2	PC Packages (Win98/XP, Word, Excel)	F.M.	P.M.	Time
		100	40	3hrs.

MAJOR TOPICS:

1. Introduction to PC Application Package
2. Graphical User Interface
3. Windows Operating System
4. Document Creation and Word Processing
5. Spread Sheet

UNIT 1. Introduction to PC Application Package - Definition and Example - Word Processing • Spreadsheet • DBMS • Presentation • CAD/CAM • Accounting

UNIT 2. Graphical User Interface - Operating System - an interface • Command line user interface • Graphical User Interface • Graphical User Interface Components - Windows • Desktop • Icons • Types of Icons • Dialog Box • Menu • Command Button • Textbox • List Box • Radio/option Button • Check Box • Spinner • Scroll Bar • Combo Box

UNIT 3. Windows Operating System - Different Versions/Types of Windows - Windows 3.1 • Windows 95 • Windows 98 • Windows Me • Windows NT • Windows 2000 • Window XP • Basic Mouse Techniques - Click • Double Click • Point • Drag • Drag and Drop • Basic Keyboard Techniques - Closing windows/application • Moving between open windows • Selecting an application • Taking help • Menu and its Convention- Dimmed Command • Ellipses • Check mark • Short cut key to right of a command • A triangle to the right of a command • Control Menu and its options- Restore • Move • Size • Minimize • Maximize • Close • Switch to • Navigating in a dialog box • Working with File Manager/Windows explorer • Creating files • Directories / folder • short cut • Searching for files and directories • Moving • Copying • Renaming files and directories • Associating files with applications • Formatting floppy Disk and Hard disk • Scandisk • Disk Defragmentation • Setting Desktop environments • Printing • Applets of windows - Notepad, Paint, Wordpad, Calculator, Character Map, Media Player, Users.

UNIT 4. Document Creation and word Processing-An Introduction to Word Processing - Opening and closing MS-Word • The Menu Bar • Tool Bar (Tool Buttons) • Opening • Closing • Saving documents • Page setup • Display / Hiding of paragraph marks and Inter word spaces Formatting - Font, Size, Style, Color, Alignments, Indentation, Bullets and Numbering, Tab and tab setting, changing case • Handling Multiple documents, Opening and closing of multiple documents, cut, copy and paste across the documents • Saving the clip board • Moving around a document • Documents template • Table Manipulation • Mail Merge • Macro • Printing

UNIT 5. Spreadsheet Opening Spreadsheet (Excel). The Menu bar • Tool bar (Tool Buttons) • Context Sensitive help • Introduction to common applications associated with spreadsheet- Calculation of taxes • sales analysis • Financial A/C • Product Scheduling • Sale invoicing: Statistical Analysis and Budgeting • Concepts - Workbook • Worksheet • Cell • Cell Pointer • Cell address • Cell range • Moving around worksheet • Entering Data - Text • Numbers • Date Formula • Referencing Relative • Absolute • Mixed • Editing • Specifying a Range • Formatting • Data Fill • Sorting and Filtering • Form • Insertion of rows • Columns • Sheets • Changing width of rows and columns • Chart • Functions - Mathematical functions • Logical Functions • Statistical Functions • String Functions • Financial Functions • Data base Functions • Date and Time Functions • Macro • Analysis tools- Goal seek, Solver • Scenario • Printing • Merging Cells.

REFERENCE BOOKS

1. Learning Windows 98 step by Step
- 2 Windows 2000: The Complete Reference
3. Using Microsoft office 2000/XP

by Rajeev Mathur, Pub. BPB

by Vens, Pub. TMH

by Batt., Pub. PHI

1BCA3

Programming Logic &
Design Techniques

F.M.
100

P.M.
40

Time
3hrs.



MAJOR TOPICS-

1. Introduction
2. Mathematical Preliminaries
3. Algorithm Specification & Performance Analysis
4. Programming Concepts
5. Software Development Methodology

UNIT 1. Introduction - Origin and definition of the term "ALGORITHM" • Euclid's algorithm • Features of algorithm- Finiteness, Definiteness, Input, Output, Effectiveness

UNIT 2. Mathematical Preliminaries - Mathematical Induction • Numbers • Powers and Logarithms • Sum and Products • Integer Functions and Elementary Number Theory • Permutations and Factorials • Binomial Coefficients • Harmonic Numbers • Fibonacci Numbers • Matrices

UNIT 3. Algorithm Specification & Performance Analysis - Pseudocode • Flowchart • Performance analysis - Space complexity • Time complexity • Asymptotic Notation - Big "oh" Omega, Little Omega

UNIT 4. Programming concepts - Programming elements - variable, constant, data type, array, expression, statements • Control Structure - Sequences • Selection • Iteration • Subroutines and Functions.

UNIT 5. Software Development Methodology - Conventional Programming Technique Structural Programming • Recursive Programming • Object Oriented Programming

REFERENCE BOOKS

- | | |
|--|---|
| 1. Fundamentals of Information Technology | by Alexis Leon & Mathew Leon,
Pub. Vikash House, New Delhi |
| 2. Programme Design | by Peter Juliff, Pub. PHI |
| 3. 'O' Level Programming Concept & Systems | by V.K. Jain, Pub. BPB |
| 4. How to Design programme -An Introduction to Programming and Computing | by Kelleison, Pub. PHI |
| 5. How to solve it by Computer | by Dromy, Pub. PHI |

1BCA4

Programming in C

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS-

1. Introduction to C Language
2. C Vocabulary
3. Data Types
4. Control Structures
5. Array
6. Functions
7. Storage Class

UNIT 1. Introduction to C Language-

- (a) History, Program development -Coding, Compilation, Linking, Running
- (b) Important features of C Language - Structured programming - High /Middle /Low Level • Case sensitiveness • Character set • block structure
- (c) Different version of C compilers

UNIT 2. C Vocabulary - Keywords - Operators -Arithmetic, Logical etc • Operator's precedence and associativity • Library Functions and their header files

UNIT 3. Data Types -Kinds, Range and Size • Memory variables • Constants • Basic data type modifiers

UNIT 4. Control Structures -Control structure -if, switch, for, while, do-while

UNIT 5. Array-1D, 2D, 3D

UNIT 6. Functions -Declaration, Definition, Calling, Making a library Functions

UNIT 7. Storage Class -Storage Class modifiers

REFERENCE BOOKS

1. Programing in C by E. Balaguruswami, Pub. TMH
2. Programming with C by Gottfried, Schaums outline Series, Pub TMH
3. Thinking in C by Mahapatra, Pub PHI

		F.M.	P.M.	Time
1BCA5	Communicative English	100	40	3hrs.

The main objective of this course is to improve proficiency in English by developing skills in reading, writing, listening, speaking and composition. The different kinds of composition included are- Paragraphs, expository, composition, narrative composition descriptive composition, notes, reports and summaries.

Writing Skills:-

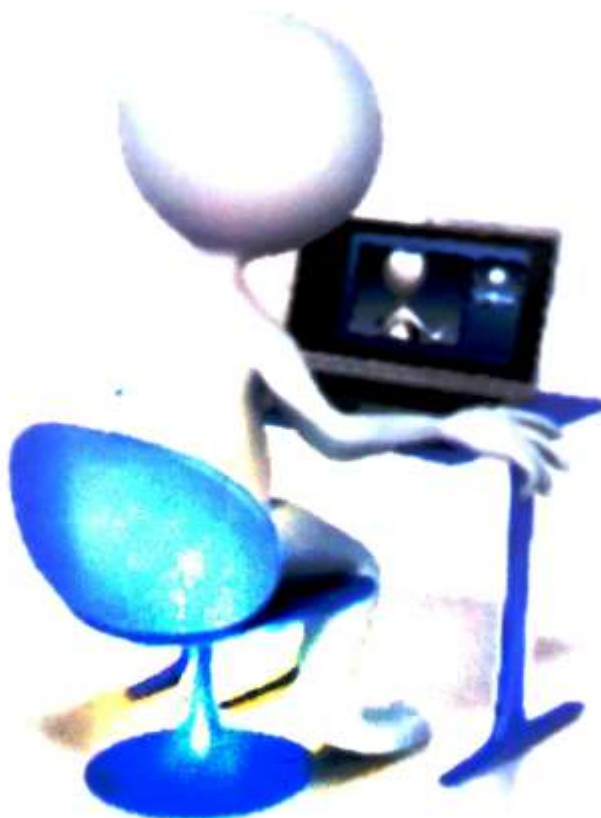
1. Business Letters (Correspondence)
2. Interpretation of various charts and graphs
3. Vocabulary Building
4. Paragraph Writing/Expansion of ideas/comprehension
5. Reportage

Speaking Skills:-

6. Basic Sentence Patterns
7. Narrating Stories with the help of hints
8. Describing some incidents (hints minimised)
9. Conversation, Debating, Group Discussion
10. Extempore topics for speech

REFERENCE BOOKS

- | | |
|------------------------------------|--|
| 1. English Grammar | by Wren & Martin |
| 2. Effective English Communication | by Mohan Krishna, Dr. Raman & Meenakshi, Pub TMH |
| 3. English Conversion Practice | by Dixon, Pub PHI |



SEMESTER-II

Group A : (Theory Group) Theory papers to be examined by university through examination conducted at the end of semester.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	2BCA1	Digital Computer Organisation	100	40
2.	2BCA2	Advanced Programming in C	100	40
3.	2BCA3	Fundamental Data Structure	100	40
4.	2BCA4	Application Programming in Foxpro	100	40
5.	2BCA5	Financial Accounting	100	40
Aggregate Marks			500	200

Group B : (Practical & Continuous Evaluation) Sessional work papers to be evaluated internally, however during computer Lab test atleast two external university examiners must be present. Evaluated answer sheet and marks foil shall be forwarded to the University Controller of Examinations.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	2BCA6	Internal Assessment & Term Work	100	45
2.	2BCA7	Computer Lab-II	100	45
3.	2BCA8	Summer Assignments	100	45
4.	2BCA9	Professional Personality Skill	50	23
Aggregate Marks			350	158

- (a) Group A (Theory Papers) Full Marks : 500 Pass Marks : 225
 (b) Group B (Sessional Works) Full Marks : 350 Pass Marks : 158

Aggregate Marks of 2nd Semester : 850

Pass Marks : 383

MAJOR TOPICS:

1. Introduction to Digital Computers
2. Binary Numbers, Codes and Arithmetic
3. Digital Systems Algebra
4. Combinational Switching Circuit
5. Flip-Flops, Registers and Counters
6. Digital Memory Systems
7. Basic Machine Organization

Unit 1: Introduction to Digital Computers - Digital Computer Vs Analog Computer • Characteristics of Digital Computers

Unit 2: Binary Numbers, Codes and Arithmetic - Numbering system • Conversion • Binary addition & subtraction • Complement representation of numbers • Addition/Subtraction of numbers in one's complement notation • Addition/subtraction of numbers in two's complement notation • Binary Multiplication and division • Binary Coded Decimal Numbers • Floating point Arithmetic

Unit 3: Digital Systems Algebra - Postulates of Boolean Algebra • Basic theorems of Boolean Algebra • Boolean functions and truth tables • Different forms of boolean functions • Logic gates • Simplifying boolean functions • Karnaugh map

Unit 4: Combinational Switching Circuit - Combinational Circuit design procedure • Binary operators and logic gates • Integrated circuits and NAND - NOR Gates • Realisation of Boolean expression with NAND Gates • Some common combinational circuits used in digital systems

Unit 5: Flip-Flop, Registers and Counters - Basic sequential circuit and types • Sequential circuits - Flip-Flops, Counters, Counter decoders • Controlled counters, shift registers, push-down stack, transfer of information between registers • Single shot trigger

Unit 6: Digital Memory Systems - Memory parameters • Characteristics of magnetic cores • Semiconductor • Random access memory • Read only memories • Content addressed memories

Unit 7: Basic Machine Organisation - Storage organisation • Instruction and data representation • CPU organisation • I/O organisation • Basic instruction set • Base registers • Instruction formats

REFERENCE BOOKS

- | | |
|---|--------------------------------|
| 1. Computer system and Architecture (3 rd edition) | by M. Mano, Pub. PHI |
| 2. Computer Organisation & Design | by Pal & p. Chaudhari |
| 3. Introduction to Digital Computer Design | by V. Rajarman & Radhakrishnan |
| 4. Computer Organisation and Architecture | by W. Stalling |
| 5. IBM PC and Clon Hardware Troubleshooting & Maintenance | by Govind rajalu |

2BCA2

Advance Programming in C

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS:

1. Abstract Data Type
2. Pointers
3. Function Revisited
4. File Handling
5. Bitwise Operations



Unit 1: **Abstract Data Types**- Structure & Union

Unit 2: **Pointers** - Declaring Pointer • Assigning address to a pointer • Size of pointer • Types of pointers • Pointers and array • String manipulation • Array of pointers

Unit3: **Function Revisited** - Function Call - Recursion • Call by value and call by reference • Variable number of arguments • Command line arguments

Unit 4: **File Handling**- Opening, Closing and Processing files using library functions

Unit 5: **Bitwise Operators**->>, <<!, &, ~and their applications

REFERENCE BOOKS

- | | |
|-----------------------------------|--------------------------|
| 1. Turbo C-The Complete Reference | by H. Schildr |
| 2. Programming in C | by S. Kochan |
| 3. C Programming | by Kernighan & Ritchi |
| 4. Spirit of C | by Moolish Kooper |
| 5. Application programming in C | by Johnson Baugh & Kalin |

MAJOR TOPICS:

1. INTRODUCTION TO DATA STRUCTURE
2. LIST
3. STACK
4. QUEUE
5. TREE

- UNIT 1: Introduction to Data Structure - Array** - A Data structure (concept) • Linear and Non Linear Data-Structure • Memory Allocation Technique- Static and Dynamic • Deallocation of Memory
- UNIT 2: List** - Sequential list, linked, push, pop, display, Infix, post fix and pre fix notation of arithmetic expression using stack
- UNIT 3: Queue**- Sequential, linked, Insertion, deletion and display
- UNIT 4: Tree** - Sequential and linked representation • Binary search tree- insertion, Traversing (in order, pre order, post order) recursively and non-resursively • Deletion in B.S.T. • Concept-AVL tree, Threaded binary tree, B-tree • Representing arithmetic expression using binary tree.

REFERENCE BOOKS

- | | | |
|----|--------------------------------|--|
| 1. | Data Structure | by Sahani |
| 2. | Data structure Through C | by Y. Kanetkar |
| 3. | Data structure and programming | by Kruse, Pub PHI Design in C, 2 nd Edition |
| 4. | Data structure Using C | by Tenenbourn, Langsom & Augenstein, Pub PHI. |



MAJOR TOPICS:

1. Introduction
2. Foxpro Database Management Utilities
3. Memory Variable Functions
4. Programming Foxpro
5. Exceptional Conditions

Unit 1 : Introduction - Foxpro - An Introduction concept of DBMS and RDBMS, Files, Tables, Records, Fields

Unit 2 : Foxpro Database Management Utilities- Foxpro Working Environments, Creating Viewing, Editing & Deleting table structure and its contents • Sorting and indexing data base files • Reports and labels

Unit 3 : Memory Variable & Functions- Creating and using memory variables and arrays, Saving and Restoring memory variables, Setting Environment commands, Time and Date Functions, Mathematical commands and functions, Data type conversion functions, Macros, Character functions

Unit 4 : Programming With Foxpro- Creating a program file • Performing input / output • Control structure - IF, SCAN, FOR, DO WHILE, TEXT • Following modular approach - Functions & Procedures • Programming with Multiple Data base Files • Programming with Multiple programme files in a project • Creating program interface - Boxes, Windows, Menus and popups, Key trapping and manipulation • File Manipulation Functions

Unit 5 : Exceptional Conditions - Different Error Conditions • Locating Errors • Common Error messages • Error debugging techniques

REFERENCE BOOKS

- | | |
|--|-------------------------|
| 1. Fox Pro Made Simple | by R.K. Taxali, Pub BPB |
| 2. Mastering Fox Pro | Pub BPB |
| 3. Fox Pro for Windows: Inside and Out | by Jones, Pub TMH |

MAJOR TOPICS:

1. Introduction to Accounting
2. Voucher
3. Accounting Group
4. Account Books
5. Accounting Information & Reports

Unit 1 : Introduction to Accounting - What is Accounting ? Difference between accounting and Book Keeping • Advantages of Accounting • System of Financial Accounting • Classification of Accounts • Rules of debit and credit • Manual Vs computerized accounting

Unit 2 : Voucher- Receipt & payment voucher - Journal voucher • Sale & Purchase voucher • Debit & Credit note • Reverse journal and memo voucher

Unit 3 : Accounting Group- Groups & Sub groups • Primary and Secondary cost centres

Unit 4 : Account Books - Cash / Bank Book • Journal • General Ledger • Memorendum Register • Sales Register • Purchase Register • Day Book

Unit 5 : Accounting Information & Reports - Trial Balance • Profit & Loss, Balance Sheet • Ratio Analysis • Cash Flow • Fund flow Statements of accounts • Negative Ledger • Overdue Receivable • Overdue paybles • Adjustment

REFERENCE BOOKS

- | | |
|---|----------------|
| 1. Book Keeping and Accounting | by M.G. Palkar |
| 2. Financial Management | by Khan & Jain |
| 3. The Essence of Financial Accounting | by Chadwick |
| 4. The Essence of Management Accounting | by Chadwick |

MAJOR TOPICS:

1. Introduction.
2. Visual Basic Controls
3. Declaring and Using Memory Space
4. Control Structure
5. Procedures & Functions
6. Exception Handling
7. File and Database Handling
8. Object Oriented Programming
9. VB Project Development

- Unit 1:** **Introduction**-Visual Basic-A Rapid Application Development Tool • Integrated Development Environment of Visual Basic • Concept of Object Oriented and event driven programming • History of Visual Basic
- Unit 2:** **Visual Basic Control** - Concept of Control/Active X Control • Label • Textbox, Command Button, Option Button, Check Box, List Box, Combo Box, Slider Control, Image, Picture, Scroll Bar, Clock, File, Directory, Drive, Timer Tab Strip, Flexgrid, Dialogue Control • Introduction with important properties, Methods and events • Menu Editor • Tool Bar • Designing interface using controls • Menu, and Tool Bar
- Unit 3:** **Declaration and Using Memory Space** - Variables • Data Types • Array • Dynamic array • Control Arrays
- Unit 4:** **Control Structure** - Sequence, Selection and Iteration structure • Selection and iteration control statements
- Unit 5:** **Procedures & Function** - Creating and working with event driven module • Creating and using sub module and function module • Module • Call by value, Call by Reference • Recursion • Library functions - String, Date and Time, Mathematical and Financial, Type Conversion
- Unit 6:** **Exception Handling** - Introduction to exceptional situations - Design Time, Compile time and Run time errors • Error handling techniques
- Unit 7:** **File and Database Handling** - Introduction to different file organization • Files related controls, objects and properties • Working with sequential access file • Working with Random Access file • Working with DBMS in VB • Report generation in VB
- Unit 8:** **Object Oriented Programming**- The concept of abstraction and encapsulation - Class, Object • Class module Vs standard module • Creating and using classes • Implementing polymorphism in Visual Basic • Introduction to creating Active X Control
- Unit 9:** **VB Project Development**- Making an exe file • Package and deployment wizard

REFERENCE BOOKS

- | | | |
|----|---|-------------------------------|
| 1. | Learn Microsoft Visual Basic 6.0 Now | by Halvorson, Pub PHI |
| 2. | Visual Basic 6.0 from Scratch | by Donald and Oancea, Pub PHI |
| 3. | Visual Basic 6.0 2nd ed | by Rahmel, Pub YMH |
| 4. | MCSD: Visual Basic 6.0 Distributed applications | by Syngress, Pub TMH |
| 5. | Teach yourself Visual Basic 6.0 | by Warner, Pub TMH |

3BCA3

Database Management System

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS:

1. Introduction
2. Data Models
3. Relational Data Model, Implementation & Manipulation
4. Normalization
5. Database Security
6. Future Trends in DBMS

- Unit 1: Introduction** - Introduction to Database Management System • File Systems and associated problems • Advantages and disadvantages of DBMS • Component/Structure of DBMS • Different data models-introduction to Relational Hierarchical & Network Model.
- Unit 2: Data Models** - Concept of entities, Attributes, Association and Relationship • Entity Relationship Model • Drawing E-R Diagram • Data Abstraction-Generalization, Specialization, Aggregation, Ansi-sparc Model.
- Unit 3: Relational Data Model, Implementation & Manipulation** - Concepts of Attributes and domains • Tuples • Keys • Introduction to Codd's Rules • Introduction to Relational at Algebra and Relational Calculus • SQL-DDL • DML • DCL • Introduction to QUEL • Introduction to RQBE.
- Unit 4: Normalization** - Relational database design issue • Anomalies in Database • Introduction Functional dependency • Normalization - 1NF, 2NF, 3NF, BCNF • Normalization through synthesis
- Unit 5: Database Security** - Different security policies - Authorization, Identification, Authentication Encryption, Decryption, Integrity rules and constraints • Auditing • Introduction to Database recovery mechanism.
- Unit 6: Future Trends in DBMS** - Concept of Distributed Database System • Knowledge based database system • Expert Database System • Object Database System

REFERENCE BOOKS

- | | | |
|----|---|----------------------------|
| 1. | Introduction to Database System | by C.J. Data |
| 2. | Data Base System Concept | by Korth |
| 3. | Principles of Database Management | by James Martin |
| 4. | Computer Database Organization | by James Martin |
| 5. | Relational database design for Micro Computers Applications | by Prentice Hall (Jackson) |

3BCA4

Computer Network & LAN

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS:

1. Introduction to Computer Network
2. Network Structure
3. Network Architecture
4. OS Reference Model
5. Transmission Media
6. Transmission & Switching
7. Broadcast Networks & Their Protocols

- Unit 1:** **Introduction to Computer Network** - Computer Network and uses • Network goals • Application of N/Ws
- Unit 2:** **Network Structure**- Hosts • Communication subnet • IMPS • Point-to-point channels, Different topologies of point to point channels
- Unit 3:** **Network Architecture** - Protocol Hierarchies • Peer Processes
- Unit 4:** **OSI Reference Model** - Different layers of OSI model • Connection oriented and connection less services
- Unit 5:** **Transmission Media** - Magnetic media • Twisted pair • Baseband co-axial cable • Fibre optics • Communication satellites
- Unit 6:** **Transmission & Switching** - FDM and TDM • CKT Switching • Packet switching • Hybrid switching • ISDN
- Unit 7:** **Broadcast Networks & Their Protocols** - CSMA/ CD • CSMA/CA • Ethernet (802.3) • Type of Ethernet cables • Token bus (802.4) • Token ring (802.5) • WAN Repeaters • Bridges • Routers • Gateways • FDDI Backbones • TCP/IP

REFERENCE BOOKS

- | | |
|---|---------------------|
| 1. Essentials of Networking | Pub Microsoft Press |
| 2. Electronic Version of Documentation of WIN 2000 and NOVELL 5.0 | |
| 3. Documentation of Linux Installation (Electronic version) | |
| 4. Computer Networks, | by Black U. |
| 5. Computer Communication Network | by W. Stalling |

MAJOR TOPICS:

1. Introduction to Management
2. Evolution of Management Thought
3. Planning
4. Organizing
5. Leading
6. Controlling

- Unit 1: Introduction to Management** - Definition • Nature & Scope • Concepts of Management • Administration & Organization • Management Process & Levels of Management
- Unit 2: Evolution of Management Thought**- Contribution of F.W. Taylor, Henri Fayol, Petel F. Druker, Henry Muntrberg, Tom Peters etc.
- Unit 3: Planning** - Scope • Importance • Limitations • Procedure of Planning • Types of Plans • Mission Objective • Policy • Strategy • Procedure & rule • Types of Planning • Strategic & Practical
- Unit 4: Organising** - Procedure & Principles • Span of control • Concepts of authority & Responsibilities • Delegation & Decentralization Line • Staff & Functional authority • Types of Organisation structure
- Unit 5: Leading** - Leadership theories • Traits & Styles • Motivation • Theories of Maslow, Mc Gregor, Hereberg, Mcleland, Lawler-Poter Model
- Unit 6: Controlling**- Process & Types of Control

REFERENCE BOOKS

- | | |
|--|--------------------------|
| 1. Essential of Management | by Herold Kontz Weihrich |
| 2. Principles & Practice of Management | by Saxena |
| 3. Principles & Practice of Management | by Shejwalkar & Ghanekar |
| 4. Principles & Practice of Management | by Tripathi |
| 5. Management-Tasks, Responsibilities and Practice | by Peter & Drukar |

SEMESTER-IV

Group A : (Theory Group) Theory papers to be examined by university through examination conducted at the end of semester.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	4BCA1	Operating Systems	100	40
2.	4BCA2	OOPS Programming in C:	100	40
3.	4BCA3	Internet & E- Commerce	100	40
4.	4BCA4	Linux Operating Systems	100	40
5.	4BCA5	System Analysis & Data Processing	100	40
Aggregate Marks			500	200

Group B : **(Practical & Continuous Evaluation)** Sessional work papers to be evaluated internally, however during computer Lab test at least two external university examiners must be present. Evaluated answer sheets and marks foil shall be forwarded to the University Controller of Examinations.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	4BCA6	Internal Assessment & Term Work	100	45
2.	4BCA7	Computer Lab - IV	100	45
3.	4BCA8	Minor Summer Assignments	100	45
4.	4BCA9	Professional Skills	50	23
Aggregate Marks			350	158

- | | | |
|---|------------------|-------------------------|
| (a) Group A (Theory Papers) | Full Marks : 500 | Pass Marks : 225 |
| (b) Group B (Sessional Works) | Full Marks : 350 | Pass Marks : 158 |
| Aggregate Marks of 4th Semester : 850 | | Pass Marks : 383 |

MAJOR TOPICS:

1. Introduction to Operating System
2. Process Management
3. Storage Management
4. Processor Management
5. File Management
6. Device Management



- Unit 1: Introduction to Operating System** - What is an Operating System • Functions of Operating Systems • Interaction of Operating System with hardware & user Programmes • Types of Operating Systems (Batch Operating System, Multiprogramming Operating System, Network Operating System, Distributed Operating System, Time Sharing Operating System) • Structure of an Operating System
- Unit 2: Process Management**- Definition of process • Process states • Process states Transaction • The process control Block • Operation on process (Suspend & Resume) • Mutual Exclusion • Critical section • Dekker's Algorithm's • Semaphores • Deadlock • Indefinite Postponement • Necessary condition for Deadlock • Deadlock Prevention • Deadlock Voidance • Deadlock Detection • Deadlock Recovery
- Unit 3: Storage Management** - Storage Organisation • Management, Hierarchy • Management strategies • Contiguous & Non contiguous storage allocation • Single user Contiguous Storage Allocation • Variable Portion Multiprogramming • Virtual Storage • Paging • Segmentation • Combined paging & Segmentation System • Page Replacement • Strategies • Demand Paging • Page fault frequency page replacement
- Unit 4: Processor Management** - Scheduling Levels • Scheduling Criteria • Pre-emptive vs. Non Preemptive Scheduling • Interval Timer • Priorities • FIFO Scheduling • RR Scheduling • SJFS Scheduling • SRT Scheduling
- Unit 5: File Management**- File Concept • Directories • Directory structure in DOS • Moving • Renaming • Copying • Deleting and undeleting files under DOS • Disk Organisation • Disk Scheduling
- Unit 6: Device Management** - Control of Various Devices • Device drivers • Interrupt driven or Pol driven Data transfer • Need of software & hardware Protocols



REFERENCE BOOKS

1. Operating System concepts
2. Operating System Concept
3. Operating System Concept & Design

by Abrahamitberschatz, TMH

by Peterson

by Milenkovic, Pub TMH

4BCA2

OOPS Programming in C++

F.M.

100

P.M.

40

Time

3hrs.

MAJOR TOPICS

1. Introduction of object oriented concepts
2. Fundamentals of C++ Programming
3. Constructors and Destructors
4. Overloading
5. Inheritance
6. Pointers and Virtual Functions
7. Streams
8. Template
9. Exception Handling



Unit 1: **Introduction to object oriented concepts** - Inheritance • Class • Objects • Polymorphism • Overloading • Dynamic Binding • Advantages of OOP • Object Oriented Analysis and Design

Unit 2: **Fundamentals of C++ Programming** - History of C++ • Structure of a C++ Program • Declaration of Class and Object-definition and declaration of members • Objects as data types • Objects as function arguments • Structures and classes • Data types • Basic data types • User defined data types • Variables and constants • Dynamics initialization of variables • Reference variables • Enumerated variable • Operators and expression • Coding • Control Construct - sequence, selection, iteration • Arrays and strings • Input/Output mechanisms : Cin, Cout • Concepts of function : Declaration • Calling, definition • Scope rules of members of class • Data and type conversion between basic types • Between objects and basic types • Between objects of different classes • Limitations of type conversion.

Unit 3: **Constructors and Destructors** - Basic Constructors • Parameterized constructors • Constructors with default arguments • Dynamic initialization of objects • Copy constructors • Destructors • Limitations on constructors and destructors.

Unit 4: **Overloading** - Function overloading • Operator overloading • Unary, binary

Unit 5: **Inheritance** - Derived classes and base class • Access specifier • Derived class constructors • Member functions overriding • Types of inheritance - Public and Private • Multiple inheritance.

Unit 6: **Pointers and Virtual Functions** - Pointers concepts • Pointers to objects • Memory management using new and delete operators • Virtual functions and polymorphism • Friend functions • Static functions • Macros and inline function

Unit 7: **Stream - Streams classes** - Hierarchy • Header files • Stream manipulators string stream • Character streams • Object I/O • File streams • Disk I/O with member function

- Unit 8:** **Templates-** Function templates • Class templates
- Unit 9:** **Exception Handling** - Try block • Catch handler • Throw statement • Exception specification

REFERENCE BOOKS

1. C++ The Complete Reference by H. Schildt, Pub TMH
2. C++ by Balaguruswami, Pub TMH
3. C++ and Object oriented Programming Paradigm
4. Introduction to Object oriented programming and C++ by Y.P. Kanetkar, Pub BPB

4BCA3

Internet & E- Commerce

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS:

1. Internet Concept
2. Internet Implementation
3. Electronic Commerce & Banking
4. Electronic Commerce and Retailing
5. Electronic commerce and on Line publishing



- Unit 1:** **Internet Concept** - What is Internet • How it is different from Internet • Groupware • Future of internet - Cheaper, Flexible, Versatile • Data transmission in Internet • Platform for Internet • Network Topologies • Servers (NT/NOVELL/UNIX/LINUS) • Client Workstation
- Unit 2:** **Internet Implementation-** Hardware, Software Protocols for Internet • IP Network • HTTP Server • SMTP, POP3, IMAP4, LDAP, Document Server • Implementing Intranet Using Novell And Windows
- Unit 3:** **Electronic Commerce and Banking** - Requirements • Standards • Case Studies
- Unit 4:** **Electronic Commerce and Retailing** - Requirement • Standards • Case Studies
- Unit 5:** **Electronic Commerce and Online Publishing** - Requirement • Standards • Case Studies

REFERENCE BOOKS

1. Electronic Commerce: The Cutting Edge of Business
2. E-Commerce Strategies
3. The Internet Complete Reference
4. E-Commerce Essentials with Microsoft Front Page Version 2002

by Bajaj & Nag, Pub TMH

by Trepper, Pub PHI

by Hahn, Pub TMH

by Holden, Pub PHI

4BCA4

Linux Operating Systems

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS:

1. Introduction to System Software
2. Introduction to Assembler
3. Introduction to Compiler
4. Introduction to OS
5. Basics of LINUX
6. File System & Concept of Blocks in LINUX
7. Shell Programming



Unit 1: Introduction to system software & types of software

Unit 2: Introduction to Assembler - Types of translator • Assembler • Implementation, Macro and microprocessor, loaders

Unit 3: Introduction to Compiler : Approaches to compiler development • Compiler design phases • Software tools lex, yacc

Unit 4: Introduction to OS - Operating System Structure - Cayered structure approach • Kernel approach • Virtual Machine • Cleint-server model

Unit 5: Basics of Linux-History of Linux • Features of Linux system • S/W layers

Unit 6: File system & Concepts of block in Linux - File system • Files & directories commands • Different types of files and directory • Permission • Other useful commands • Disk related command • Boot block • Super block • I/O redirection • Piping • Tree command • Filters

Unit 7: Communication in LINUX- Process in Linux • Background process and foreground process • Advantage and disadvantage of background process • Running process in background • Different process related commands

Unit 8: Communication in LINUX - Communication in Linux • Different communication related commands - write, wall etc

Unit 9: Shell Programming - VI editor • Shell variables • Keywords • Positional parameters • Passing command line arguments • Control instruction etc

REFERENCE BOOKS

- | | | |
|----|--|---------------------------|
| 1. | Linux Administration Handbook | by Nemeth et al, Pub PHI |
| 2. | Linux: The Complete Reference | by Petersen, Pub TMH |
| 3. | UNIX: Concept and applications -
Featuring SCO UNIX and LINUX | By Das, Sumitabh, Pub TMH |
| 4. | Red Hat Linux: Administrative Tools | by Fisher, Pub TMH |

4BCA5

System Analysis and Data Processing

F.M.	P.M.	Time
100	40	3hrs.

OR TOPICS:

1. Software life cycle
2. SW Inspection
3. System Analysis
4. SW Design
5. User Interface Design

Unit 1: Software life cycle - Models: Waterfall, Spiral, Prototyping • Fourth generation techniques, SW process • Software requirements specifications (SRS) • Fact-finding Techniques, Characteristics of a good SRS : Unambiguous, Complete Variable, Consistent, Modifiable, Traceable and Usable during The Operation and Maintenance phase, Prototype outline for SRS.

Unit 2: S/W Inspection - Communication skills for the System Analyst, Review/Inspection Procedure • Document, Composition of the inspection team, check list, reading by the inspectors, recording of the defects and action recommended • Students should practice inspecting small requirement specifications for good characteristics.

Unit 3: System Analysis - SA tools and Techniques, DFD, Entity Relationship Diagrams, Project

Unit 4: S/W Design - System Design Tools and Techniques, Prototyping, Structured Programming

Unit 5: User Interface Design - Elements of Good design, Design issue, Features of a modern GUI, Menus, Scrolling, Windows, Icons, Panels, Error messages etc

REFERENCE BOOKS

- | | | |
|----|---|-------------------------------|
| 1. | System Analysis and Design Methods & Barrow | by Whitten, Bentley |
| 2. | Systems Analysis and Design, 5th ed. | by Kendall & Kendall, Pub PHI |
| 3. | Software Testing Techniques | by Beizer |

SEMESTER-V

Group A : (Theory Group) Theory papers to be examined by university through examination conducted at the end of semester.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	5BCA1	Component Architecture and Programming (COM, DCOM)	100	40
2.	5BCA2	Multimedia Tools Applications	100	40
3.	5BCA3	Programming in JAVA	100	40
4.	5BCA4	Oracle RDBMS	100	40
5.	5BCA5	Computer Centre Management	100	40
Aggregate Marks			500	200

Group B : (Practical & Continuous Evaluation) Sessional work papers to be evaluated internally, however during computer Lab test at least two external University examiners must be present. Evaluated answer sheet and marks foil shall be forwarded to the University, Controller of Examinations.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	5BCA6	Internal Assessment & Term Work	100	45
2.	5BCA7	Computer Lab - V	100	45
3.	5BCA8	Professional Personality Skills	50	45
Aggregate Marks			250	113

- | | | |
|---|------------------|-------------------------|
| (a) Group A (Theory Papers) | Full Marks : 500 | Pass Marks : 200 |
| (b) Group B (Sessional Works) | Full Marks : 250 | Pass Marks : 113 |
| Aggregate Marks of 5th Semester : 750 | | Pass Marks : 313 |

5BCA1

**Component Architecture
Programming (COM, DCOM)**

F.M.	P.M.	Time
100	40	3hrs.

MAJOR TOPICS :

1. **COM & DCOM Basics**
2. **Building Distributed, Scalable Applications with COM Part I**
3. **Building Distributed, Scalable Applications with COM Part II**

Unit 1: COM & DCOM Basics - COM/DCOM Issues • Components • Persistence • Sharing and Scalability

Unit 2: Building Distributed, Scalable Applications with COM Part I - Transactions and Databases • Multi - Tier Architecture • Security

Unit 3: Building Distributed, Scalable Applications with COM Part II - Clustering • Message • Queuing

REFERENCE BOOKS

1. COM Programming with Microsoft Net: Templeman (TMCH)
2. COM/ DCOM Unleashed Randy (Tech Media)
3. COM/DCOM Primer Plus waite group Cadman (Tech media)

5 BCA2

**Multimedia Tools
and Application**

F.M.	P.M.	Time
100	40	3hrs

MAJOR TOPICS:

- | | |
|-----------------------------|-------------------------------------|
| 1. Introduction | 5. Hardware Peripherals |
| 2. Multimedia System | 6. Multimedia & Internet |
| 3. Video Technology | 7. Multimedia on Windows |
| 4. Video Compression | |

Unit1: Introduction- Goal, Objective & applications, Multimedia building blocks • Multimedia • Hardware, Platform & Software tools, Authoring Tool

Unit 2: Multimedia System - File Format (BMP, GIF, PCX etc) Communication System & Multimedia • Database

Unit 3: Video Technology- Animation Basics, Digital Imaging (Still & Moving) Video Capture, Video Processing, Video recovery techniques, AVO & AVI file formats, Conferencing techniques, Video Streaming, Video Technology, Motion of Synchronization

Unit 4: Video Compression - LZW, DCT Coding, JPEG, MPEG, Hypertext & Hyper media • SGMI, Document architecture, ODA, MHEG

Unit 5: Hardware Peripherals - Connection • Memory & Storage devices • Input & Output devices • Communication devices

Unit 6: Multimedia & Internet - Design www

Unit 7: Multimedia on Windows - Multimedia function calls, windows supports for sound, animation movies, music & Midicontrols

REFERENCE BOOKS

1. Multimedia: Computing, Communication and applications by Ralf Steinmetz & Klara Nahrstedt
2. Multimedia making it work by Tay Vazighan
3. Multimedia in practice by Judith Jeffecoate, Pub PHI

5BCA3

Programming in JAVA

F.M.	P.M.	Time
100	40	3hrs

MAJOR TOPICS:

1. Applet As Java Applications
2. Abstract Windows Toolkit and event handling in JAVA
3. Multithreading
4. Swing Libraries
5. Input/Output using streams
6. Introduction to Networking with JAVA
7. JDBC
8. Java Beans & EJB



- Unit 1: Applet As Java Applications** - Applets specific methods & Related HTML reference • Creating an applet • Displaying it using Web Browser with an applet viewer exe • Advantages and Disadvantages of Applet Vs Applications
- Unit 2: Abstract Windows Toolkit and Event handling in JAVA** - Components used in AWT • Basics of event handling and Individual events • AWT package
- Unit 3: Multithreading** - Introduction • Thread classes & its methods • Thread priorities • Thread synchronization
- Unit 4: Swing Libraries** - The model - view controller • Design pattern • Different layout, menus, dialog boxes, text input
- Unit 5: Input/ Output using steams** - Introduction • Files & Streams • Reading data from sequential access file • Updating sequential access file • Buffered reader, Buffer writer classes

- Unit 6: Introductions to networking with JAVA** – Introduction • The url Class • The Socket and Server Socket classes • Connecting to the server • A simple chat program
- Unit 7: JDBC** • The Java data base connectivity standard • 4 different types of drivers and their advantages • JDBC-ODBC connectivity with ms-access database • Three Tire architecture
- Unit 8: Java Beans & EJB** • Why Beans • How Beans are used • The BDK • Beans Properties e Methods • Introduction to EJB

REFERENCE BOOKS

1. Java Thread Programming by Paul Hyde
2. Java Beans Programming by Joseph O'Niel
3. Mastering Java Beans by Laurence Vanhe Isuwe

		F.M.	P.M.	Time
5BCA4	Oracle RDBMS	100	40	3 hrs

MAJOR TOPICS:

1. Introduction to the Relational Model
2. Normalization and Query Processing
3. Recovery, Concurrency Management and Database Security

- Unit 1: Introduction to the Relational Model** - An overview of the Relational Model • Data Independence • ER diagrams • Relational Algebra Operation • Referential Integrity and Database Integrity • SQL
- Unit 2: Normalisation and Query Processing-** Functional Dependency • Normalisation • Multivalued and Join Dependency • Query Processing
- Unit 3: Recovery, Concurrence Management and Database Security-** Reliability • Concurrency Management • Concurrency Control • Locking Scheme • Database Security, Integrity and Control • Practicals on SQL Server.

REFERENCE BOOKS

1. Oracle How- To Waite Group Pub BPB
2. Oracle 9i Complete reference Pub TMH
3. OCP Oracle DB Training Guide Pub BPB



MAJOR TOPICS:

- | | |
|-------------------------------|--------------------------|
| 1. Introduction | 4. Group Dynamics |
| 2. Profile of an entrepreneur | 5. Organizational design |
| 3. Motivation process | 6. Leadership |

Unit 1: Introduction - What is organization, components of organization, nature and variety of organization (in terms of objectives, structure etc.), importance of organizational behavior in work situation, Fundamental concept of OB - different models of OB i.e. neotritic, custodial, supportive, collegial.

Unit 2: Profile of an entrepreneur - Perception, attitudes, commitment, values, creativity and other personality factors-motives-primary, secondary-(achievement, power affiliation).

Unit 3: Motivation process - Interpersonal conflict - defense mechanisms-study of selected theories of motivation-Mcgregor's theory X and Y, Abraham Maslow's theory of head hierachy-Herzberg's two factor theory, vector broom expectancy, theory

Unit 4: Group Dynamics - Formal and informal groups, types of groups, theories of group formation.

Unit 5: Organizational design - Various organization structures and their effects on human behaviour, organizational elamite, organizational culture.

Unit 6: Leadership - Definition- importance to the organization - different styles of leadership.

REFERENCE BOOKS

- | | |
|---|--------------------------------|
| 1. Behavior in Organizations | by Greenberg & Beron |
| 2. Management of Organizational Behavior | by Hersey, Blanchard & Johnson |
| Leading Human Resources, 8 th ed | |
| 3. Modern Organizations | by Etzioni |
| 4. Entrepreneurship and small Business Management | by B.S. Bhatia & G.S. V Batra |



SEMESTER-VI

This semester Comprises of only Major Project and Internal assessment & Team work both are to be evaluated internally in presence of atleast two external examiners of the University.

Sl No.	Sem. & Paper Code	Name of Subject	Full Marks	Pass Marks
1.	6BCA1	Internal Assessment & Term Work	500	225
2.	6BCA2	Computer Lab - VI	100	45
Aggregate Marks			600	270



SUMMARY OF SEMESTER WISE DISTRIBUTION OF MARKS

SEMESTERS	Group-A Theory Paper Examined by Univ.		Group-B Theory Paper Examined by Univ.		Aggregate	
	F.M.	P.M.	F.M.	P.M.	F.M.	P.M.
I st	500	200	250	113	750	338
II nd	500	200	250	158	850	383
III rd	500	200	250	113	750	338
IV th	500	200	250	158	850	383
V th	500	200	250	113	750	338
VI th	Major Project-		500	225	600	270
	Internal Assessment & Term work-		100	45		
	Grand Total				4550	2048

REGULATION FOR THE MODERATION OF UNIVERSITY RESULT

- (i) The Semester examination for each theory papers (Group-A) will be for a duration of three hours. The maximum marks in each paper will be 100 and the minimum marks for pass will be 40.
- (ii) For passing in the semester aggregate of marks must be at least 45% in theory and practical groups separately.
- (iii) For passing in each practical paper (Group-B) must be 45%.

(iv) **AWARD OF CLASS**

The class will be awarded on the basis of aggregate marks scored by the student i.e. out of 4550 provided he/she has passed in each individual entity of both Group-A & Group-B of BCA. Semester I, II, III, IV, V, VI.

Class

- (i) Distinction _____ 75% and above
- (ii) First Class _____ 60% and above
- (iii) Second class _____ 45% and above

(v) **MODULUS OPERANDI OF CARRY -OVER PAPERS**

- (a) A Candidate fail in maximum 4 papers of 1st semester will be promoted to 2nd semester.
- (b) A candidate will be promoted from 2nd to 3rd semester even if he/she has not cleared maximum 4 papers of 1st and 2nd semester.
- (c) Promotion from 3rd to 4th semester will be allowed only if candidate has cleared all papers of 1st semester & has not cleared maximum 4 papers of 2nd & 3rd semester.
- (d) Promotion from 4th to 5th semester will be allowed if a candidate has cleared all papers of 1st and 2nd semester but has not cleared maximum 4 papers of 3rd and 4th semester.
- (e) Promotion from 5th to 6th semester will be allowed only if a candidate has cleared all papers up to 5th semester.
- (f) To pass the BCA course, students will have to clear all the semesters within 6 years from the date of admission.

(iv) **Evaluation of Internal Assessment & Term work, Professional Personality skills and Summer Assignments.**

- (a) Students will have to appear at the Internal Assessment examination in each semester. The marks on Internal Assessment & term work, Professional personality skills and summer Assignment will be awarded on the basis of class Assessment, attendance, Laboratory work report and over all behavior and discipline of the students. The responsibility for evaluating Internal sessional work shall be that of a committee of teachers Constituted by the Director/ Principal / Head / Co-Ordinator / Professor - in - charge. The marks shall be forwarded to University.

- (b) For Summer Assignment and Professional personality skill-the marks will be based on assignment records / presentation style / participation in internal academic curricular activities such as seminars quiz, Group - Discussion, etc.
- (c) During the sixth semester the students will have to present on scheduled date with 4 copies of project record in form of booklet & floppy/ CD. The marks on project will be awarded on the basis of their project presentation and demonstration before the departmental committee and the external examiners of university.

(vii) **MAJOR PROJECT WORK :**

Sixth semester comprises of only two papers

(i) 6BCA1	Major Project -	F.M.	-	500
(ii) 6BCA2	Internal assessment & Term work	F.M.	-	100

(a) Project work may be done individually or in groups in case of bigger project of software development. However if project is done in a group, each students must be given a responsibility for a district module and care should be taken to see the progress of individual modules is independent of others.

(b) Students should take guidance from an internal guide and prepare a Project report on "Project work" in at least 4 typed copies of their project synopsis. A separate file, containing source-code, synopsis to each of the external panel members in advance of the project viva date.

(c) The Project work should be of such a nature, that it could prove useful or be relevant from the Commercial/Management angles.

(d) The Project report shall be duly assessed by the internal guide of the subject and remark grade will be communicated by the Co-ordinator to the external examiner at the time of viva.

(e) The Project work carry full marks : 500; pass mark : 225 i.e. 45% of full marks.

(f) The Project report should be prepared in a format prescribed by the college which also specifies the contents and the methods of presentation.

(g) Project work should be aimed on development of software packages useful in automation of offices and organizational management, computerization of billing system, results, inventories etc. Project shall be carried out by the students in an industry, business establishment. Educational Organizations, Consultancies etc. Outside college with prior permission of the college. The students will have to Report back to College periodically, to acknowledge about the development of their work to the internal guide.

(h) The Viva-Voice examination on Project report shall be conducted by minimum of two external examiners at the end of VI semester.

PATTERN OF QUESTION FOR THEORY PAPERS

For each theory papers of 100 marks, 10 questions shall be given of 20 marks each out of which candidate will have to answer 5 questions, one questions (preferably Q. No. - 1) of 20 marks shall be of objective nature and shall be made compulsory. Written examination shall be of 3 hours duration.

CLARIFICATION OF SYLLABUS :

It may be necessary to clarify certain points regarding the course. The syllabus committee, Academic Council shall meet at least once in a year to study and clarify and difficulties from the colleges.

REVISION OF SYLLABUS

As the Computer Technology is changing very fast, revision of the syllabus should be considered every (3) three years.