

CHAUDHARY CHARAN SINGH UNIVERSITY, MEERUT

SYLLABUS FOR BCA COURSE

FIRST SEMESTER

BCA-101 Mathematics-I

Differentiation and Partial differentiation of vector functions, Derivative of sum, dot product and cross product of two vectors, gradient, divergence and curl.

Straight lines : Circles and the system of circles; standard equation and properties of Parabola, Ellipse and Hyperbola. General equations of second degree in two variables, tracing of simple conic sections.

Successive differentiation, Leibniz theorem, Partial differentiation, Euler's theorem, change of variables, Jacobians.

Integration of rational and irrational functions, Reduction formulae; Rectification; Cylinders, volumes and surfaces of Revolution, Some simple problems of double and triple integrals.

Differential equations of first order, Differential equations of second order with constant coefficients.

Suggested Readings :

1. Engineering Mathematics : E. Kreyzig
2. Higher Engineering Mathematics : B. S. Grewal
3. Differential Calculus : Shanti Narayan

BCA-102 Discrete Mathematics

Mathematical Logic

Statements, Negation operation, Logic connectives and compound statements, conjunction, disjunction, Truth tables, Duality, conditional and in-conditional statements, valid arguments, laws of detachment and syllogism, tautologies and fallacies.

Boolean Algebra :

Development of Boolean Algebras, Truth functions, AND, OR, NOT operators. Laws of Boolean Algebra, Reducing Boolean expression, Boolean expressions and logic diagrams, Universal laws, Building blocks, Negative Logic Monitors, Truth tables and maps, Reduction of maps, Hybrid functions.

Graph Theory

Definition of a graph, finite and infinite graphs, Incidence and degree, null graph, Sub graph, walks, Path and circuits in a graph, connected graphs, Trees, Properties of Trees, cut sets and cut vertices, Spanning graphs, Incidence Matrix, Directed graphs, Fundamental circuits in Digraphs, Adjacency matrices of a digraph.

Suggested Readings :

1. Elements of Discrete Mathematics (McGraw Hill) 1985 : C.L.Liu
2. Graph Theory with Applications to Engineering and Computer Science (PHI) 1993 : N. Deo
3. Discrete Mathematical structure for Computer Science (PHI)1989. : C. Busby
4. Graphs, Network and Algorithms (Wiley Inter Science, NY)1989. : M.N.S. Swamy and K. Thulasiraman

BCA-103 Computer Fundamentals and Programming Concepts

Computer Fundamentals : Number system : decimal, octal, binary and hexadecimal. Representation of integers, fixed and floating points, character representation : ASCII, EBCDIC.

Functional units of computer, I/O devices, primary and secondary memories.

Programming Fundamentals : Algorithm development, Techniques of problem solving, Flowcharting, Stepwise refinement, Algorithms for searching, Sorting (exchange and insertion), merging of ordered lists.

Programming in C : Representation of integers, characters, reals. Data types : constants and variables; Arithmetic Expression, Assignment statement, Logical expression, Sequencing, Alteration and iteration; Arrays, String processing : Sub programmer, Recursion, Files and Pointers Structured programming concepts; Top down Design, Development of efficient program Correctness; Debugging and testing of Programs.

BCA-104 Principles of Management

- Conceptual Framework of Management.
- Evolution and Foundation of Management Theories.
- Study of Management Processes.

Planning, Organizing, Directing, Staffing, Communicating, Controlling, Coordinating.

- Types of Organizational Structures & Designs.
- Relevance of Computer Applications in Different Functional Areas of Management Viz : Financial Management, Materials Managements, Production Management, Human Resources Management and Marketing Management.

Suggested Readings :

1. Management. Principles & Practices : Parag Diwan & L.N. Agarwal
2. Organizational Behavior : Fred Luthans
3. Principles & Practices of Management : L.M. Prasad.

BCA-105 Practical Software Lab based on BCA-103

SECOND SEMESTER

BCA-201 Mathematics-II

The real number system as a complete ordered field, neighborhood, open and closed sets, limit points of sets. Limit, continuity, sequential Continuity, algebra of Continuous functions, Continuity of composite functions, Continuity on (a,b) implying boundedness.

Sequence, convergent sequence, Cauchy Sequence, monotonic sequence, Subsequence, Limit superior and limit inferior of sequence.

Infinite series, convergence of series, series of positive terms, comparisons tests, Cauchy's nth root test, D'Almberts ratio test, Raabe's test.

Alternating series and Maclaurin's series for $\sin x$, $\cos x$, $\log(1+x)$, $(1+x)^n$.

Applications of mean value theorem to monotonic functions and inequalities. Maxima and minima; Indeterminate forms (applications of Maxima and Minima to simple Problems.)

Suggested Readings :

1. Engineering Mathematics : E. Kreyzig
2. Higher Engineering Mathematics : B.S. Grewal
3. Differential Calculus : Shanti Narayan

BCA-202 Data Structure & Programming with 'C'

Section A

C-Language Programming :

(At least two questions are to be attempted out of four questions.)

Data types, I/O functions, Logical Operators, Control structures of C, conditional Statements, Switch Statement, Arrays, Pointers, Functions, Recursion, Structures & Unions. Operations on bits, File Handling & C Preprocessor.

Section B

Data Structure :

(At least two questions are to be attempted out of four questions.)

Introduction to Algorithm Design and Data Structure : Design & analysis of algorithm, Topdown and Bottom-up approaches to algorithm design, Analysis of algorithm, Frequency count, Complexity measures in terms of time and space.

Arrays; Stacks and Queues : Representation of array (single & multi dimensional arrays), Address calculating using column & row major ordering, Representation of stacks & Queues using arrays and their operations, circular queues, Applications of arrays, stacks & queues, Conversions from Infix to Postfix & prefix and evolution of prefix expressions using stack.

Linked List : Single linked list (Operations on list), Linked stacks and queues, polynomials representation and manipulation using linked list, Application : Reading and Writing polynomials, polynomials addition. Circular linked list and doubly linked list, Generalized list, Sparse matrix representation using generalized list structure.

Trees : Logical level of binary search tree, BST transferral methods (Preorder, Postorder and Inorder), Recursive and non-recursive algorithms for traverse methods, Insertion into and deletion from a BST and their implementation, preorder and postorder traversal, Insertion in Threaded tree, B-tree (Insertion and Deletion algorithms).

Searching and Sortings :

Sequential and binary searches, Indexed search, Hashing schemes, Sorting methods (Insertion, selection, Bubble, Quick, Merge and Heap sorts).

Suggested Readings :

1. The C programming Language (PHI) 1990. : Kerighan and Ritchie
2. Data structure and Program Design in "C" (PHI) 1998. : Kruse, Leung and Tondo
3. How to Program (Prentice Hall).1996 : Deitel & Deitel - C
4. Fundamentals of Data Structures (Galgotia Publications). 1994. : Ellis Horowitz and Sartaj Sahni
5. Introduction to Data Structures and Algorithm Analysis with Pascal, 2nd Edition,
(West Publishing Company). : Thomas L.Naps G. J. Pothering
6. Algorithm + Data Structures = Programs (Prentice Hall). 1976 : N. Writh

BCA-203 DBMS (Data Base Management System)

Unit-I : Overview of Database Management System

- 1.1 Elements of Database system
- 1.2 DBMS and its architecture
- 1.3 Advantage of DBMS (including Data independence)
- 1.4 Type of database users
- 1.5 Role of Database administrator

Unit-2 : Data Models

- 2.1 Brief overview of Hierarchal and Network Model
- 2.2 Detailed study of Relational Model (Relations, properties of Relational Model, key and Integrity rules)
- 2.3 Comparison of Hierarchal, Network and Relational Model
- 2.4 CODD's rules for Relational Model
- 2.5 E-R diagram

Unit-3 : Normalization

- 3.1 Normalization concepts and update anomalies
- 3.2 Functional dependencies
- 3.3 Multivalued and join dependencies
- 3.4 Normal Forms : (1NF, 2NF, 3NF, BCNF, 4NF and 5NF)

Unit-4 : SQL

- 4.1 SQL constructs
- SQL Join : Multiply table queries
- 4.3 Built-in functions
 - 4.4 Views and their use
 - 4.5 Overviews of ORACLE : (Data definition and manipulation)

Unit-5 : Database Security, Integrity and Control

- 5.1 Security and Integrity threats
- 5.2 Defense mechanism
- 5.3 Integrity
- 5.4 Auditing and control
- 5.5 Recent trends in DBMS-Distributed and Deductive Database

Suggested Readings :

1. An introduction to Database system : C.J.Data Vol. 1
2. An introduction to Database system : Bipin Desai

BCA-204 Digital Electronics and Computer Organization

Digital Electronics

(At least one question is to be attempted out of the given two questions)

Logic gates and circuits : Gates (OR, AND, NOR, NAND, XOR & XNOR); Demorgan's laws; Boolean laws, Circuit designing techniques (SOP, POS K-Maps).

Combinational Building Blocks : Multiplexers; Decoders; Encoders; Adder and Subtractor.

Sequential Building Blocks : Flip-flops (RS, D, JK, Master-slave & T flip-flops); Registers & shift registers; Counters : Synchronous and Asynchronous (Designing method.)

Memories : ROMs, PROMs, EPROMs, RAMs, Hard Disk, Floppy Disk and CDROM.

Computer Organization :

(At least two questions are to be attempted out of the given five questions.)

Central Processing Unit : Introduction, Register Organization; Stack Organization, Instruction format and Addressing modes.

Control Unit : Control memory, Horizontal and vertical formats; Address sequencer; Multiprogramming Vs Hardwired control; RISC Vs CISC.

Arithmetic Algorithms : Integer multiplication using shift and add, Booth's algorithm, Integer division, Floating point representations and arithmetic algorithms.

I/O Organization : Strobe based and handshake based communications; Vector and priority interrupt; DMA based data transfer.

Memory Organization : Basic cell of static and dynamic RAM; Building large memories using chips; Associative memory; Cache memory organization and Virtual memory organization.

Suggested Readings :

1. Digital Logic and Computer design (PHI). 1998. : M.M. Mano
2. Computer Architecture (PHI). 1998 : M.M. Mano
3. Digital Electronic (TMH). 1998. : Malvino and Leach
4. Computer Organization and Architecture (PHI). 1998. : William Stallings
5. Digital fundamentals (Universal Book Stall) 1998. : Floyd, L. Thomas
6. Computer Organization (Mc Graw-Hill, Singapore). : Hamacher, Vranesic and Zaky

BCA-205 Practical Software Lab based on BCA-202 & BCA-203

THIRD SEMESTER

BCA-301 Computer Oriented Statistical and Optimization Methods

Unit-1 : Collection of Data, Sampling and Sampling Designs, Classification and Tabulation of Data, Graphical Representation of Data, Measures of Central value, Measures of Dispersion, Skewness, Moments and Kurtosis Correlation and Regression.

Unit-2 : Probability and Probability Distributions (Normal, Poisson's Binomial)

Unit-3 : Linear Programming, Graphical Method, Simplex method (Simplex application) Transportation Problems, Assignment Problems, Game theory.

Suggested Readings :

1. Probability and Statistical Inference : Hogg
2. Introduction to the Theory of Statistics : Alexander M.Mood, Franklin A Graybill, Dane C. Boes
3. Linear Programming : G. Hadley
4. Mathematical Planning Techniques : N.S. Kambo
5. Operation Research : Handy A. Taha

BCA-302 Operating Systems

Operating Systems Resource Manager : Operating system classification simple monitor, multiprogramming, time sharing, Real time systems Multiprocessor systems, Operating system services.

File Systems : File supports access methods, allocation methods-contiguous linked and index allocation; Directory systems-single level, tree-structured, a cyclic graph and general graph directory, file protection.

CPU Scheduling : Basic schedulers concepts, Process overviews, process states, multiprogramming, Schedulers and scheduling algorithms, multiply-processor scheduling.

Memory Management : Bare machine approach, Resident monitor, Partition, paging and segmentation, virtual memory, demand paging.

Deadlocks : Deadlocks characterization, Deadlocks prevention, avoidance detection and recovery.

Resource Protection : Mechanisms, policies and domain of protection, Access matrix and its implementation, dynamic protection structures.

Case study of the Windows-NT : Design principle; System components; Environment subsystem; File System; Programmer interface.

Suggested Readings :

1. Operating system Concepts (Addison-Wesley Publishing Company) 3rd Edn., 1998. : Peterson & Silberschatz
2. Operating Systems (Mc-Graw Hill Book Comp.) 1996. : Madnick & Donovan
3. Modern Operating systems (PHI) 1998 : Tanenbaum,A.S.
4. Operating Systems-A Design Approach (TMH). 1997. : Growley, Charles

BCA-303 Computer Architecture and Assembly Language

Basic computer organizations and design. Instructions and instruction codes. Timing and control/instruction cycle. Registers/types of registers/general purpose and special purpose registers/index registers. Registers transfer and micro-operations/Register transfer instructions. Memory and memory function. Bus/data transfer instructions. Arithmetic logic micro-operatins/shift micro-operations. Input/output and interrupts. Memory reference instructions. Memory interfacing/cache memory and cache controllers.

Central Processing Unit : General register organizations , stack organizations, instruction formats, addressing modes, data transfer and manipulation. Program control. Reduced set computer, pipeline and vector processing, Parallel processing, pipe lining, arithmetic pipeline /RISE pipeline vector processing/array processing.

Computer Arithmetic : Addition, subtractions and multiplication algorithms, division algorithms. Floating point arithmetic operations, decimal arithmetic operations.

Input-Output Organizations : Peripheral devices, Input-Output interface, ALU Asynchronous Data transfer, mode of transfer, priority interrupts, Direct Memory Address (DMA) Input-Output processors (IOP), serial communication.

Evaluation of Microprocessor : Overview of Intel 8085 to intel propentium processors. Basic Microprocessor architecture and interface, internal architecture, external architecture, memory and input-Output interface.

Assembly Language, Assemblers, Assembly level instructions, macros, use of macros, in I/O instructions, program loops, programming arithmetic and logic, Subroutines, Input-Output programming.

Suggested Readings :

1. Introduction to Microprocessor, Prentice hall of India. : Leventhal, L.A.
2. Introduction to Microprocessor, Tata McGraw Hill. : Mathur, A.P.
3. Prospective in Computer Architecture, Prentice Hall of India. : Rao, P.V.S

BCA-304 Production and Operations Management

1. Introduction to operations systems.
2. Historical Evolution of Operations Management..
3. New Product Development.
4. Product Design & Service Design.
5. Technology Development Process and Technology Selection.
6. Capacity Planning.
7. Process Selection, Product-process Strategy.
8. Facilities Location.
9. Layout Design.
10. Production Planning and Control .
11. Aggregate Planning.
12. Introduction to Materials Management, Materials Requirement Planning Systems.

13. Application of JIT.

14. Statistical Quality Control (SQC), Quality Assurance, Acceptance Sampling & Total Quality Management (TQM).

15. case Studies on various topics.

Suggested Readings:

1. Modern Production/Operations Management : Buffo & Saran.

2. Production & Operations Management : Ada & Ebert .

3. Production & Operation Management : Chase & Aquila no.

4. Principles of Operations Management : Render & Heizer .

BCA-305 Practical Software Lab based on BCA-302 & BCA-303

FOURTH SEMESTER

BCA-401 Computer Oriented Financial Managements

1. Introduction to Accounting

-Meaning of accounting.

-Advantage of accounting.

-Uses of Financial Statements.

-Double entry system of financial Accounting.

-Generally accepted accounting Principals.

-Concepts underlying profit & loss accounts, balance sheet.

2. Accounting Mechanics

-Cash Book

-Special Journals

-Rules of Debit and Credit

-General Ledger

-Bank Reconciliation Statement

3. Preparation of Financial Statement

-Preparation of Trial Balance

-Reconciliation of Trial Balance

-Preparation of Financial Statements (Including Adjustments)

4. Familiarity with and use of Standard Accounting Package (Ex-Tally)

5. Capital Budgeting : Basic Principles and Techniques.

6. Working capital Management : An over all view.

7. Capital Structure : Planning & Analysis

-Ratio Analysis

-Fund flow statement

-Cash flow statement

Suggested Readings :

1. Book Keeping : T.S. Grewal

2. Financial Management : Prasanna Chandra

3. Ex-Tally Accounting package :-

BCA-402 Computer Communication Networks

Introduction : Uses of networks (goals and applications), OSI reference model, Example Network-Novell NetWare, ARPNET, NSFNET, The Internet.

The Physical Layer : Transmission media : Twisted pair, Baseband and Broadband coaxial cable, Fiber optics; Wireless Transmission : Radio transmission, Microwave transmission, Infrared and light wave transmission in; ISDN services: Virtual Circuits versus circuit Switching, Transmission in ATM Networks, Paging Systems, Cordless Telephones, Cellular telephones; Communication Satellite.

The Data Link Layer : Framing, Error control, Flow control; Error detection and Correction; Protocols : Simplex stop and wait protocols : One bit sliding window, Using Go-Back n, Example : The Data Link Layer in the Internet.

The Medium Access sub Layer : Framing Static and Dynamic Channel Allocation in LANS and MANS; IEEE standard 802.3 and Ethernet; IEEE standard 802.3 and Token Bus, 802.4 and token Ring; Bridges; Bridges from 802*to 802 y, Transparent Bridges, Source Routing Bridges.

The Network Layer : Network layer design issues, shortest path routing, flooding, Flow based routine, Broadcast routine, Congestion control and prevention policies; Internet working; connectionless Internet working, Tunneling Internet work Routing Fragmentation, Firewall, IP protocols, IP address, Internet control protocols.

The Transportation Layer : The transport service; Transport protocols : Addressing, Establishing and releasing a connection. The internet transport protocols : TCP.

The Application Layer : Network Security, Electronic mail.

Suggested Readings :

1. Computer Networks, (PHI), 1980 : Tanenbaum, A.S.
2. Data and Computer Communication, Prentice Hall of India, 1995 : Stallings, W.

BCA-403 Computer Graphics

Development of computer graphics, basic graphics system and standards. Raster scan and Random scan graphics, continual refresh and storage displays, display processors and character generators. Colour display techniques, frame buffer and Bitbit operations concepts in raster graphics.

Points/lines and curves/scan conversion/line drawing algorithms/circle and ellipse generation/polygon filling/conic-section generation, antialiasing.

Two-dimensional viewing, basic transformations, coordinate systems, windowing and clipping, segments, interactive picture construction techniques, interactive input/output devices.

Three-dimensional concepts, 3-D representation and transformations, 3-D viewing, algorithms for 3-D volumes, Spline curves and surfaces, Fractal Quadrex Octroi data structures.

Hidden lines and surfaces, Rendering and Animation.

Suggested Readings :

1. Principles of Interactive Computer Graphics 1981. : Newman, W.M. and Spraul, R.F.

BCA-404 Object Oriented Programming and C++

Object-Oriented Analysis and Data Modeling : Object Oriented Concepts, Object oriented Analysis Modeling, Data Modeling.

Object-Oriented Design : Origins of object-Oriented Design, Object-Oriented design concepts, Object-Oriented Design methods, class and object definition, Refining Operations, Program Components and Interfaces, Annotation for object-Oriented Design, Implementation of Details Design, An alternative object-Oriented Design Strategy, Integrating OOD with SA/SD.

Introduction to OOP and C++ : Advantages of OOP, Need of object-Oriented programming, characteristics of object-Oriented language, C++ and C.

C++ Programming Basics : Basic program construction; input/output using cin/count; Preprocessor Directives; Comments; integer. character, float data types manipulators Arithmetic operators; Library functions.

Loops and Decisions : Relational operators, Loops. Decisions, Logical Operators, Precedence, Control statements.

Structure and Functions : Structure, Enumerates Data Types, simple functions, Passing arguments to and returning values from functions, Reference Arguments,

Overloaded functions, Inline functions, Default Arguments, Variables and storage classes, Returning by reference.

Objects and classes : Specifying & using class & object, Constructors, objects as function arguments.

Arrays and Operator Overloading : Array Fundamentals, Arrays as class member data, Array of objects, strings, overloading Unray & Binary operators, Data conversion, Pitfalls of overloading & Conversion.

Inheritances : Derived class and their constructs, overriding member functions, class hierarchies, Public & private Inheritance levels.

Pointers : Pointers with Arreys, functions, strings, pointer to objects, new-delete, Linked-Lists Virtual Functions, files and Streams : Virtual, friend and static functions; the this pointer; streams; strings, character, object I/O; I/O with Multiple Objects; File pointers; Disk I/O with member function; Error Handling; Redirection; command-line Arguments.

Suggested Readings :

1. The Waite's Group Object Oriented Programming using C++ : Lafore, Rober S. (Galgotia Publications) 1994.
2. Software Engineering, A Practitioner's Approach. (McGraw Hill book Co.) : Pressman, Rogers S. International Edition 1992.
3. Object Oriented Programming in C++ : Barkakati, Nabajoti (Prentice Hall of India) 1996
4. Object-Oriented Software Construction : Meyer, B. (Prentice Hall of India) 1990

BCA-405 Practical Software Lab based on BCA-401, BCA-402, BCA-403 & BCA-404

FIFTH SEMESTER

BCA-501 Software Engineering

Software Engineering : Definition and paradigms, A generic view of software engineering.

Requirements Analysis : Statement of system scope, isolation of top level processes and entitles and their allocation to physical elements, refinement and review.

Analyzing a problem, creating software specification document, review for correctness, consistency, and completeness

Designing Software Solutions : Refining the software Specification; Application of fundamental design concept for data, architectural, and procedural designs using software blue print methodology and object oriented design paradigm; creating design document : Review of conformance fo software requirements and quality.

Software Implementation : Relationship between design and implementation : Implementation issues and programming support environment; Coding the procedural design, Good coding style and review of correctness and readability.

Software Maintenance : Maintenance as part of software evaluation, reasons for maintenance, types of maintenance (Perfective, adoptive, corrective), designing for main tenability, techniques for maintenance.

Comprehensive examples using available software platforms/case tools, Configuration Management.

BCA-502 Programming in Visual Basic

Visual Basic overview/and environment. Overview of main screen/Tiltbar/toolbar/toolbox. Using menus/customising a form/ building the user interface/creating controls/ command buttons/Text boxes/labels/image controls.

Program Elements : Statements in visual basic /writing codes /dialog box, variables/ types of variables/strings / numbers. Writing procedures. Visual basic program structure. Project, Forms/modules and frames. Projects with multiple. Forms displaying in formation on Forms/ picture Boxes/ Texts boxes/ Printer objects controlling flow/ built-in functions/ user defined functions and procedures. Array, grids and records/sorting and searching of records. Objects/object oriented programming/creating objects/ building classes.

Simple programed in visual basic.

Suggested Readings :

1. Visual Basic for windows 95 Tata Macgraw-Hill. : Gary Cornell

BCA-503 Information Systems : Analysis, Design and Implementation

Overview of System Analysis and Design : Systems Development Life Cycle; concept and models : requirements determination, logical design, physical design, test planning, implementation, planning and performance evaluation, communication, interviewing, presentation skills; group dynamics; risk and feasibility analysis; group-based approached, JAD, structures walkthroughs, and design and code reviews; prototyping; database design' software quality metrics; application categories software package evaluation and acquisition.

Information Requirement Analysis : Process Modeling with physical logical data flow diagrams, data modeling with logical entity relationship diagrams.

Developing a Proposal : Feasibility study and cost estimation.

System Design : Design of input and control, design of output and control, file design/database design, process design, user interface design, prototyping; software constructors; documentation.

Application Development Methodologies and CASE tools : Information engineering, structured system analysis and design, and object oriented methodologies for application development data modeling, process modeling, user interface design, and prototyping, use of computer aided software engineering (CASE) tools in the analysis, design and implementation systems.

Design and Implementation on OO Platform : Object oriented analysis and design through object modeling technique, object modeling, dynamic magelang and functional, object oriented design and object oriented programming systems for implementing, object oriented data bases.

Managerial issues in Software Projects : Introduction to software markets planning of software projects, size and cost estimates; project scheduling; measurement of software quality and productivity, ISO and capability models for organizational growth.

Suggested Readings :

1. Introduction of System Analysis and Design (PHI) 1998. : I.T. Haryszkiewicz
2. Analysis and Design of Information Systems (PHI) 1991 . : V. Rajaraman
3. Analysis and Design of Information Systems (Tata Mc Graw Hill Book Company) 1986. : J.A. Senn
4. System Analysis and Design Methods (Galgotia Publications Pvt. Ltd.) 1994. : J.K. Whiten, L.D.Bentley, V.M.Beslow

BCA-602 Multimedia and Its Applications

Introduction and Hardware : Definition of Multimedia, CD-ROMs and Multimedia applications, Multimedia requirements-Hardware, Software, Creativity and organization, Multimedia skills and training Macintosh verses PC, the Macintosh platform, PC platform, Connections, Memory and storage devices, Input devices,

Output hardware, Communication devices.

Multimedia Software : Basic tools, painting and drawing tools, OCR software, Sound editing programs, Animation devices and digital movies and other accessories, Linked multimedia objects, office suites, word processor, spreadsheets presentation tools, Types of Authoring tool scard and page based, Icon based and time based authoring tools, Object Oriented tools.

Production Building Block : Text-using text in Multimedia, Computers and Text, Font editing and Design tools, Hyper media and Hyper text, Sounds-multimeadia system sounds MIDI verses Digital Audio, Audio file formats, Working with sound in Windows, Notation interchange file format (NIFF), Adding sound.

Production Tips : Image-creation, making still images, images colors, Image; File formal, Animation-principles of animation, making workable animations Video, using video, Broadcast video, standard, Integrating Computer and TVs, shooting and editing Video, using Recording formats, Video tips, Video Compression.

Multimedia Project Development and Case Studies : Project planning, Estimating, RPFs and Bid proposals, Designing, Producing acquiring and using contents, Using Telnet, Testing, Preparing for delivery, CD-Rom Technology and Standards.

Designing for the Word Wide, working on the Web, Text for the Web, images for the Web, Sound for the Web, Animation for the Web.

Suggested Readings :

1. Multimedia Making It Work (TMH) 1997. : Tay Vaughan
2. Multimedia Power Tools, 2 Edition (Random House Electronic Publishing). : Peter Jerram and M. Gosney

BCA-603 Project Work-II

BCA-604 Practical Software Lab based on BCA-601 & BCA-602