

BCA(BACHELOR OF COMPUTER APPLICATION)

FIFTH SEMESTER SYLLABUS

BCA0501 Operating System

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UNIT –I

Operating System Concepts: Operating System Classification- Simple Monitor, Multi Programming, Time Sharing, Real Time Systems, Multiprocessor Systems, Batch Processing, Simple User, Multi User, Operating System Functions And Characteristics.

UNIT –II

Processor Management: Process Overview, Process States, Process State Transitions, Process Control Block, Operations On Processes, Suspend And Resume, Interrupt Processing, Scheduling Algorithms, Multiple Processor Scheduling. Deadlock: Deadlock Problem, Deadlock, Deadlock Characterization, Necessary Conditions, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery From Deadlock.

UNIT –III

Memory Management: Partition, Paging, Segmentation, Types Of Memory Management Scheme , Bare Machine, Resident Monitor, Swapping, Multiple Partition, Virtual Memory, Demand Paging.

UNIT –IV

File Management: File Types, Operation On Files, File Support, Access Methods, Sequential Access, Direct Access, Index, Allocation Method (Free Space Management, Contiguous, Linked, Indexed), Directory System Single-Level, Two-Level, TreeStructured, File Protection. Text & Reference Books: 1. James L. Peterson And Abraham Silberschatz, "Operating System Concepts", Addison Wesley Publishing Company. 2. H.M.Deitel, "Operating Systems", Addison Wesley Publishing Company. 3. A.M.Lister, "Fundamentals Of Operating Systems", Macmillan Publishers Ltd. Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0502 e-Commerce

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UNIT-I

e-Commerce: Definition, Framework, Architecture, benefits and Impact of e-Commerce, The Anatomy of e-Commerce application, eCommerce Consumer applications, e-Commerce Organization Application, e-commerce in India, Prospects of e-Commerce.

UNIT-II

ConsumerOriented E-Commerce: ConsumerOriented applications, mercantile Process Models, consumer's perspective, Merchant's perspective. Advertising and marketing on the Internet: The new age information based marketing, Advertising on the Internet Active or pushBased advertising models, Passive or pull based advertising models. Guidelines for Internet advertising. Online marketing process.

UNIT-III

Types of Electronic Payment System: Digital tokenBased electronic payment systems, smart cards and electronic payment systems, credit cardBased electronic payment systems, Risk and electronic payment systems. Electronic data Interchange and its applications in business.

UNIT-IV

Securing the Business on Internet: security Policy, Procedures and Practices, transaction security, CRM, what is e-CRM, it's applications, The e-CRM marketing in India, Major Trends, Global Scenario for eCRM, CRM utility in India.

Text & Reference Books:

1. Jeffrey F.Rayport & Bernard Jaworski: Introduction to Ecommerce, TMH, 2003. 2. Kalakota & Winston: Frontiers of E-commerce, Pearson Education, Mumbai, 2002. 3. David Whiteley: E-Commerce- Strategy technologies and Applications, Tata Mac-Graw Hill, New Delhi, 2000. 4. C.S.V.Murthy: E-Commerce-Concepts, Models & Strategies, Himalaya Publishing house, Mumbai, 2003. 5. Kamallesh K Bajaj & Debjani Nag: E-Commerce, the Cutting Edge of Business- Tata McGraw-Hill, New Delhi, 2002. 6. Bharat Bhaskar: Electronic Commerce, Tata Mc-Graw-Hill, New Delhi, 2003. 7. Perry: E-Commerce, Thomson Publications, New Delhi,2003. 8. Elias M.Awad: Electronic Commerce, Prentice-Hall India, New Delhi, 2002.

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BCA0503 Management Information System

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4 0 0

UNIT –I

Management Information System: Definition, Meaning and Role of Management Information System Introduction, Definition, System's Approach, Pitfalls in Management Information Systems. Development of Organizational Theory: Management & Organizational Behaviour, Management, Information & System Approach.

UNIT –II

Data Processing: Operation of Manual Information System, Components of Computer System, Conversion of Manual to Computer Based Systems, Data Bank Concept, Types of Computer Based Applications. Information System for Decision Making: Evolution of Information System, Decision Making & Management Information System.

UNIT –II

Strategic & Project Planning for Management Information System: Business Planning, Management Information System Responses, Management Information System Planning0 General & Details. Conceptual System Design: Define Problem, Set System Objective, Establish System Constraints, Determine Information Needs & Sources, Develop Alternative Conceptual Design & Documentation, Prepare the Design Report.

UNIT –IV

Detailed System Design: Aim, Project Management, Define Subsystem, Input, Output & Process Design, System Testing, Software & Hardware selection, Documentation of Detailed Design.

Text & Reference Books:

1. Robert G. Murdick, Joel E. Ross, James R. Claggett, "Information System for Modern Management". 2. Surendra Basandra, "Computers Today". Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0504 ASP.Net Technologies

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UNIT –

Introducing .NET: Microsoft web development, Move from workstation to distributed computing, Internet factor, importance of.net platform0 OS neutral environment, device independence, wide language support, internet based component services. .NET framework: Common language runtime(CLR), code management and execution, security support, error handling and garbage collection,.net framework class libraries0System classes, data and XML classes, windows form and

drawing classes, web classes. Features of .NET framework: ASP.NET web forms and web services
Web page authoring & server controls, ASP.NET infrastructure.

UNIT – II

VB.NET : Introduction, statement, lines, comments, operators, procedures, variables
implicit, explicit, constants, parameters, arrays, branching, looping, objects, classes, inheritance, accessibility of inherited properties and methods, overriding methods. System class, working with numbers, manipulating strings, DateTime arithmetic, converting values, formatting values, managing arrays. Namespace and assemblies, Relating namespaces and DLL assemblies, creating assemblies, importing assemblies, using imported assemblies, compiling with imported namespace.

UNIT – III

ASP.NET Web Forms: Web forms code model, In-page vs. Code behind format, web form object life cycle, handling client side events on the server, web form event handling, define and respond web form control events, AutoPostBack property, automatic state management with web forms. HTML sever control: definition, RunAt sever attribute, HTML control class, General controls-Anchor, image, form, division, span, Table control, Input Control. Web server Control: Web Control class, General control- Hyperlink, link button, image, label, Panel, Form Controls, Table controls.

UNIT – IV

Web form List Control: Simple List controls, Template List controls. Validation Controls: Definition, properties and methods of validation controls, validation controls
RequiredFieldValidator, CompareValidator, RangeValidator, RegularExpressionValidator, CustomValidator, ValidationSummary. User Controls: Definition, Markup Only User Control, Custom properties, handling events and loading user controls dynamically.

Text & Reference Books:

1. Michael Amundsen, Paul Litwin, "ASP.NET for developers", SAMS Publishing. 2. Bill Evjen, Scott Hanselman, Devin Rader, Farhan Muhammad, S. Srinivas Sivakumar, "Professional ASP.Net 2.0", Wiley India Edition. 3. Joe Duffy, "Professional .Net Framework 2.0", Wiley India Edition. Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0505 Computer Oriented Statistical Methods

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4 0 3

UNIT-I

Frequency distribution, Histogram, Frequency Polygram, Arithmetic Mean, Median, mode, geometric Mean, Harmonic Mean, Dispersion, Measures of Dispersion, Coefficients of Dispersion.

UNIT-II

Probability, Addition and multiplication Theorems of Probability, Conditional Probability, Independent events Pointwise independent events.

UNIT-III

Mathematical expectation, Expected value of function of a random variable, Properties of expectation, Properties of variance, Covariance.

UNIT-IV

Correlation, Karl Pearson's Coefficient of correlation calculation of the correlation, coefficient for a bioivariate frequency distribution, rank correlation.

Text & Reference Books:

1. Gupta, S.C. & Kapoor, V.K., Fundamental of Mathematical statistics, Sultan Chand & Sons. 2. Kapur, J.N. & Sarema, H.C., Mathematical Statistics, S. Chand & Company Ltd. Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

SIXTH SEMESTER

BCA0601 Computer Networks

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4 0 0

UNIT-I

Introduction to Communication Network: Computer Networks, (Need, uses, and Advantages of Computer Network), Network Models (Peer-to-Peer Network, Server-based Network, Client-Server Network), Network components, Network Topology (Star, Ring, Bus, Mesh, Tree, Hybrid, Advantage and Disadvantage of each types.), Types of Networks (LAN, MAN, WAN), Internet (Brief History, Internet Today, Protocol and Standard .

UNIT-II

Error Detection and Correction: Types of errors (Single-bit error, Burst error), Error Detection (Redundancy, Parity check, CRC, Checksum), Error correction (FEC, Hamming code, Burst error corrections) Data Communication Channel and Media, Conductive Media (Twisted-pair cable,

Coaxial cable), Fiber optics (Characteristic of light, Types of Fiber optics), Wireless Transmission, (Microwaves, Infrared, Radio waves).

UNIT-III

OSI Reference Model: OSI Model, OSI Physical Layer Concepts, DLL, Network Layer, TL, SL, PL and AL Concepts. Internet model / TCP/IP Model and Protocols, Modem, DSL, Cable Modem, ISDN, Real world network (Ethernet, Ethernet operation, frame format, Ethernet characteristic, cabling and components) Token Ring and Token Bus networking Technology. Network Connectivity, Repeater, Hub-(Active, Passive and Intelligent), Bridge0(Local, Remote and wireless), Routers (Static and Dynamic), switches and types of switches, Brouter and Gateways.

UNIT-IV

TCP/IP Protocol: Protocol Suite, Internet Architecture Board, TCP/IP Protocol (TCP,UDP,IP,ARD), concept of Physical Addressing, and logical Addressing, Different Classes of IP addressing, Special IP Addressing, Classful Addressing, Sub netting, Super netting, Classless addressing, TCP/IP Service Protocol (FTP,SMTP, TELNET, DNS).

Text & Reference Books:

1. Andrew S. Tahanbaum, Computer Network, PHI. 2. Behrowz A. Forouzan , Data Communication and Networking, Tata MacGraw Hill. 3. Ata Elahi, Mehran Elahi, "Data, Network and Internal communication Technology", Cengage Learning India Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0602 Numerical Methods

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UNIT-I

Representation of numbers: Decimal to Binary conversion, Floating point representation of numbers, Integer and real/floating point arithmetic, different types of errors, error in the approximation of a function, error in series approximation.

UNIT-II

Solution of algebraic and transcendental equation using Bisection method, Regula-Falsi method, Newton-Raphson method. Solution of simultaneous linear equations using Gauss Elimination method, Gauss-Jordon method, Jacobi's iterative method, GaussSeidel iterative method.

UNIT-III

Interpolation, Finite difference and operators, Newton Forward, Newton Backward, Games forward, Games backward.

UNIT-IV

Numerical differentiation: Differentiating a Graphical function, Differentiating a Tabulated function- Equal and Un-equal intervals, Numerical integration, Newton-Cotes formula, Trapezoidal rule, Simpson's 01/3rd and 3/8th rule, Weddle's rule.

Text & Reference Books:

1. B.S. Grewal, Numerical Methods in Engg & Science, Khanna Book Publishing Co., New0Delhi. 2.

R.S. Salaria, Computer Oriented Numerical Methods, Khanna Book Publishing Co., New0Delhi. 3. V.

Rajaraman, Computer Oriented Numerical Methods, PHI. 4. S.S. Sastry, Numerical Method, PHI.

Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0603

Multimedia Technology

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UNIT-I

Introduction to Multimedia : Needs and areas of use, Development platforms for multimedia, Identifying Multimedia elements Text, Images, Sound, Animation and Video, Making simple Multimedia with PowerPoint. Concepts of plain & formatted text, RTF & HTML texts, Object Linking and Embedding concept.

UNIT-II

Sound: Sound and it Attributes, Mono V/S Stereo Sound, Sound Channels, Sound and Its Effect In Multimedia, Analog V/S Digital Sound, Overview Of Various Sound File Formats On PC WAV, MP3.

UNIT-III

Graphics: Importance of Graphics in Multimedia, Vector and Raster Graphics, Image Capturing Methods Scanner, Digital Camera Etc. Various Attributes of Images Size, Color, Depth , Resolution etc, Various Image File Format BMP, DIB, EPS, PIC, and TIF Format Their Features and imitations, Basics of animation, Software Tools for animation.

UNIT-IV

Video: Basics of Video Analog and Digital Video, How to use video on PC. Introduction to graphics accelerator cards, Brief note on various video standards NTSC, HDTV, Introduction to video capturing Media & instrument Videodisk. Virtual Reality Terminology Head Mounts Display (HMD), Boom, Cave, Input Devices and Sensual Technology

Text & Reference Books:

1. Multimedia: Making it work (4th edition), Tay vaughan, Tata McGraw Hills. 2. Multimedia in action, James E Shuman, Vikas Publishing House. 3. Multimedia basics volume / technology, Andreas hoi zinger, firewall media (Laxmi Publications Pvt. Ltd) New Delhi. Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5010 parts, out of the entire syllabus. In all, five questions are to be attempted.

BCA0604 Computer Graphics

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4 0 3

UNIT – I

Introduction: Definition Of Computer Graphics And Its Applications, Video Display Devices, Raster Scan Displays, Random Scan Displays, Color CRT Monitors, Direct View Storage Tubes, Flat Panel Displays. Input Devices: Keyboard, Mouse, Trackball and Spaceball, Joysticks, Digitizers, Image Scanners, Touch Panels, Light Pens, Voice Systems.

UNIT – II

Output Primitives: Line Drawing Algorithms (DDA, Bresenhaus's), Circle Generating Algorithm(Midpoint Circle Drawing Algorithm), Ellipse Generating Algorithm, Midpoint Ellipse Generating Algorithm, Character Generation.

UNIT – III

2D Transformations: Translation, Rotation, Scaling, Reflection, Shear, Composite Transformation0Translation, Rotations, Scaling. Two Dimensional Viewing: Window-To-Viewport Coordinate Transformation

UNIT – IV

Clipping: Introduction, Clipping Operations, Point Clipping, Line Clipping(Cohen-Sutherland Line Clipping, Liang-Barsky Line Clipping, Nicholl-Lee-Nicholl Line Clipping), Polygon Clipping(SutherlandHodgeman Polygon Clipping, Weiler-Atherton Polygon Clipping), Curve Clipping, Text Clipping.

Text & Reference Books:

1. Donald Hearn & M. Pauline Baker, "Computer Graphics." Prentice Hall India. 2. F. S. Hill Jr., "Computer Graphics", Macmillan Publishing Company. 3. David F. Rogers, "Procedural Elements for Computer Graphics", Tata MacGraw Hill. Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one

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BCA0605 Software Engineering

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UNIT – I

Software engineering: Evolving Role of Software, Software Engineering, Changing nature of Software, Software Myths, Terminologies, Role of management in software development Software Process and desired Characteristics. Software Life Cycle Models: Build & Fix Model, Water Fall Model, Incremental Process Model, Evolutionary Process Models, Unified Process, Comparison of Models, Other Software Processes, Selection of a Model.

UNIT – II

Software Requirements Analysis & Specifications: Requirements Engineering, Types of Requirements, Feasibility Studies, Requirements Elicitation, Requirements Analysis Documentation, Validation and Management. Software Architecture: Its Role, Views, Component & Connector View and its architecture style, Architecture Vs Design, Deployment View & Performance Analysis, Documentation, Evaluation.

UNIT – III

Function Oriented Design: Design principles, Module level Concepts, Notation & Specification, Structured Design Methodology, Verification Object Oriented Design: OO Analysis & Design, OO Concepts, Design Concepts, UML – Class Diagram, Sequence & Collaboration Diagram, Other diagrams & Capabilities, Design Methodology, Dynamic and Functional Modeling, Internal Classes & Operations.

UNIT – IV

Detailed Design: PDL, Logic/Algorithm Design, State Modeling of Classes, Verification: Design Walkthroughs, Critical Design Review, Consistency Checkers. Coding: Programming Principles & Guidelines, Coding Process, Refactoring, Verification.

Text & Reference Books:

1. Pankaj Jalote, "An Integrated Approach to Software Engineering", 3rd Edition, Narosa Publishing House, 2005. 2. K.K. Aggrawal and Yogesh Singh, "Software Engineering", 3rd Edition, New Age International (P) Ltd, 2008. 3. Pressman, R.S., "Software Engineering – A Practitioner's Approach", 3rd Edition, McGraw Hills, 2008. 4. Mall Rajib, "Fundamentals of Software Engineering", PHI, New Delhi, 2005. Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question

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