



SCHEME OF EXAMINATION

&

DETAILED SYLLABUS

BCA

(Distance Learning Program)

(w.e.f. 2018-19)

Faculty of Information Technology, Jagan Nath University

University Campus: NH-12, Chaksu Bypass, Tonk Road, Jaipur-303901

City Campus: Plot No. IP-2,3, Phase-IV, Sitapura Ind. Area,
Opp. Choki Dhani, Jaipur.

*Approved by AC vide resolution no.dated

BCA COURSE STRUCTURE

First Semester Examination

CODE NO.	SUBJECT	Credits
BCA 101	Introduction to Computer Fundamentals	3
BCA 102	Programming in C	3
BCA 103	Communication Techniques	3
BCA 104	Mathematics-I	3
Practical		
BCA 105	C Programming Lab	2
BCA 106	Computer Fundamental Lab	2

Second Semester Examination

CODE NO.	SUBJECT	Credits
BCA 201	Computer organization & Architecture	3
BCA 202	Problem Solving Techniques	3
BCA 203	Data Base Management System	3
BCA 204	Mathematics-II	3
Practical		
BCA 205	General proficiency lab	2
BCA 206	Oracle 10g lab	2

Third Semester Examination

CODE NO.	SUBJECT	Credits
BCA 301	Object Oriented Programming using C++	3
BCA 302	Introduction to Financial Accounting	3
BCA 303	Data Structure & File System using C	3
BCA 304	Data Communication & Computer Network	3
Practical		
BCA 305	C++ lab	2
BCA 306	Data Structure lab using C	2

Fourth Semester Examination

CODE NO.	SUBJECT	Credits
BCA 401	JAVA Programming	3
BCA 402	Operating System	3
BCA 403	Web Technologies	3
BCA 404	Management Process & Organizational Behavior	3
Practical		
BCA 405	Java Programming Lab	2
BCA 406	Web Technology Lab	2

Fifth Semester Examination

CODE NO.	SUBJECT	Credits
BCA 501	Java2 Enterprise Edition	3
BCA 502	Software Engineering	3
BCA 503	E-Commerce	3
BCA 504	System Software	3
Practical		
BCA 505	J2EE Lab	2
BCA 506	Software Engineering Lab	2

Sixth Semester Examination

CODE NO.	SUBJECT	Credits
BCA 601	C# & .NET Programming	3
BCA 602	Introduction to Linux & Shell Programming	3
Practical		
BCA 603	.NET Programming Lab	2
BCA 604	Linux & Shell programming	2
BCA 605	Project	8

MAXIMUM & MINIMUM CREDITS OF THE PROGRAM

The total number of the credits of the DL BCA Program is 98

Each student shall be required to appear for examinations in all courses. However, for the award of the degree a student should secure at least 90 credits.

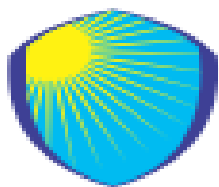
The syllabus may be revised time to time.



Examination Scheme- BCA

Subject Code	Subject Title	Type of Paper (Theory/Practical/Project/Viva/)	Maximum Marks	Internal Evaluation	End Term Evaluation	Min. Pass Marks
I Semester						
BCA 101	Introduction to Computer Fundamentals	Theory	100	30	70	40
BCA 102	Programming in C	Theory	100	30	70	40
BCA 103	Communication Techniques	Theory	100	30	70	40
BCA 104	Mathematics-I	Theory	100	30	70	40
BCA 105	C Programming Lab	Practical	50	0	50	20
BCA 106	Computer Fundamental Lab	Practical	50	0	50	20
II Semester						
BCA 201	Computer organization & Architecture	Theory	100	30	70	40
BCA 202	Problem Solving Techniques	Theory	100	30	70	40
BCA 203	Data Base Management System	Theory	100	30	70	40
BCA 204	Mathematics-II	Theory	100	30	70	40
BCA 205	General proficiency lab	Practical	50	0	50	20
BCA 206	Oracle 10g lab	Practical	50	0	50	20
III Semester						
BCA 301	Object Oriented Programming using C++	Theory	100	30	70	40
BCA 302	Introduction to Financial Accounting	Theory	100	30	70	40
BCA 303	Data Structure & File System using C	Theory	100	30	70	40
BCA 304	Data Communication & Computer Network	Theory	100	30	70	40
BCA 305	C++ lab	Practical	50	0	50	20
BCA 306	Data Structure lab using C	Practical	50	0	50	20

IV Semester						
BCA 401	JAVA Programming	Theory	100	30	70	40
BCA 402	Operating System	Theory	100	30	70	40
BCA 403	Web Technologies	Theory	100	30	70	40
BCA 404	Management Process & Organizational Behavior	Theory	100	30	70	40
BCA 405	Java Programming Lab	Practical	50	0	50	20
BCA 406	Web Technology Lab	Practical	50	0	50	20
V Semester						
BCA 501	Java2 Enterprise Edition	Theory	100	30	70	40
BCA 502	Software Engineering	Theory	100	30	70	40
BCA 503	E-Commerce	Theory	100	30	70	40
BCA 504	System Software	Theory	100	50	50	40
BCA 505	J2EE Lab	Practical	50	0	50	20
BCA 506	Software Engineering Lab	Practical	50	0	50	20
VI Semester						
BCA 601	C# & .NET Programming	Theory	100	30	70	40
BCA 602	Introduction to Linux & Shell Programming	Theory	100	30	70	40
BCA 603	.NET Programming Lab	Practical	50	0	50	20
BCA 604	Linux & Shell programming	Practical	50	0	50	20
BCA 605	Project	Practical	100	0	100	40
Note: The criteria for passing in a subject is that student should secure minimum of 40% marks in the total of Internal Evaluation and End Term Examination and compulsorily with a minimum of 30% marks in the End-Term Examination.						



JAGANNATH
UNIVERSITY

First Semester Examination

CODE NO.	SUBJECT	Credits
BCA 101	Introduction to Computer Fundamentals	3
BCA 102	Programming in C	3
BCA 103	Communication Techniques	3
BCA 104	Mathematics-I	3
Practical		
BCA 105	C Programming Lab	2
BCA 106	Computer Fundamental Lab	2

BCA 101 Introduction To Computer Fundamentals

Course Objectives

1. To introduce the basic concepts of computers.
2. To understand and operate MS-Office.
3. To familiarize with computer and its applications in the relevant fields and expose them to other related papers of IT

UNIT-I : BASICS OF COMPUTER & ITS EVOLUTION

Computers Everywhere, History and Evolution, Classification, Definitions, Concepts and Features, Data Representation, Error Detecting Codes.

UNIT-II : INPUT & OUTPUT DEVICE

Components, Input Devices, Keyboard, Pointing Devices, Pen Input Devices, Video Input Devices, Central Processing Unit, Arithmetic Logic Unit (ALU), Control Unit (CU), Primary Memory, Output Devices, Data Storage, Auxiliary Storage/Secondary Storage, Magnetic Disk, Optical Disks, Flash Memory, USB Drives, Removable Hard Drives, Smart Cards, Optical Cards.

UNIT-III : HARDWARE & SOFTWARE

Hardware, Motherboard, Software, Programming Languages, Machine Language, Assembly Language, High Level Language, Fourth Generation Language, Natural Language, Systems Software, BIOS, Operating System, Utility Software, Application Software.

UNIT-IV : Data processing

Input, Processing and output, Architecture of Computer System, The Control Unit (CU), The Immediate Access Store (IAS), ALU stands for Arithmetic and Logic Unit, Concepts of Files, Protecting Files, Storing files, File Terminology, Data Capturing, Verification.

UNIT-V : OPERATING SYSTEMS

History of Operating System, Disk Operating System, UNIX, Batch Files, Batch System, Time Sharing Systems, Multiprogramming, Spooling, Essential Properties of the Operating System Batch, Time Sharing, Interactive, Real time system, Distributed.

Text Books/ Reference Books::

1. Fundamentals of Computer by **E. Balagurusamy**[TMH]
2. Computer Fundamentals, Pradeep K. Sinha, Priti Sinha [BPB]
3. Introduction to computers, Peter Norton [TMH]
4. C How to Program P.J.Deitel, H.M.Deitel [PHI]
5. Let us C , Yashvant P. Kanetkar [BPB]

BCA 102: Programming in C

Course Objectives

1. The course aims to provide exposure to problem solving through programming
2. It aims to train the student to the basic concepts of the C-programming language
3. This course involves a lab component which is designed to give the student hands on experience with the concepts.

UNIT-I : 'C' FUNDAMENTALS

Introduction to 'C', Low Level Languages, High Level Languages, Identifier and Keywords, Data Types and Constants, Basic Data Types, Type Qualifiers, Variables, Operators and Expressions, Arithmetic, Rational, Logical, Comma, Conditional, Bitwise, Assignment, Increment and Decrement Operators, Preprocessor Directives.

Getchar Functions, Puchar Function, Scanf() Function, Printf() Function, Gets () and Puts () Functions.

UNIT-II : CONTROL STATEMENTS

Loops, The Break Statement, Continue Statement, 'If' Statement, 'If Else' Statement, Switch Statement, 'If Else If Ladder', Nested If, Iteration Statement, Nested For, Goto Statement, Conditional Goto, Unconditional Goto.

UNIT-III : ARRAYS AND STRINGS

Declaration of An Array, Initialisation of Array, Drawbacks of Initialising An Array, Dimensions of An Array, Single Dimensional Arrays, Declaration of Single Dimensional Arrays, Initialisation of One-Dimensional Array, Two Dimensional Arrays, Elements of Multidimensional Array, Strings, Passing Array to Functions.

UNIT-IV : FUNCTIONS AND STRUCTURES

Elements of User Defined Functions, Scope and Lifetime of Variables, Return Values, Function Categories, Recursion, Introduction to Structure, Array of Structures, Additional Features of Structures, Uses of Structures, Unions.

Pointers

Pointer Declaration, Reference Operator, Dereference Operator, Pointer Arithmetic, Pointers with Function, Function Pointer Syntax, Initialising Function Pointer, Using Function Pointer, Arrays and Pointer, Array of Pointers, Pointers with Structures, Pointers on Pointer.

UNIT-V : DYNAMIC MEMORY ALLOCATION

Stack and Heap, Sizeof, Malloc(), Managing Strings with Malloc(), Freeing Memory, Working with Memory Segments, Calloc() and Realloc().

File Input and Output

Bits and Bytes, Fields, Records and Files, File Streams, Opening and Closing Files, Reading Data, Writing Data, Appending Data, Goto and Error Handling, A Brief History of Goto, Usage of Goto.

Text Books/ Reference Books

1. Yashwant Kanetkar, "Let us C", BPB Publications, 2002
2. E. Bala Guruswamy, "Programming in ANSI C", TMH, 1999.
3. Al Kelly and Ira Pohl, "A Book on C", (4th Ed.), Addison Wesley, 1999.
4. B. Kernighan and D. Ritchie, "The ANSI C Programming Language", PHI., 2000.

BCA 103 Communication Techniques

Course Objectives:

By the end of the semester, students will have good command over functional grammar by which they will be able to make correct sentences. Along with that students will also be able to improve their writing skills and will have the basic knowledge of Communication which will help them to polish their communication skill.

UNIT-I Introduction Business Communication

Basic forms of Communication, Communication models and processes, Effective Communication, Theories of Communication, Audience analysis.

UNIT-II Self-Development and Communication & Corporate Communication

Development of positive personal attitudes, SWOT analysis, Voté's model of interdependence, Whole Communication. Formal and Informal Communication Networks, Grapevining, Miscommunication (Barriers), Improving Communication.

UNIT-III English Grammar & Practices in Business Communication

The Noun, The Pronoun, Articles, The Adjectives, The Verb. Group Discussions, Mock Interviews, Seminars, Effective Listening Exercises, Individual and Group Presentation and report writing.

UNIT-IV writing Skills

Planning Business Message, Rewriting and Editing, The First Draft, Reconstructing the final Draft, Business Letters and Memo Formats, Appearance request Letter, Good News and Bad News Letters, Persuasive Letters, Sales Letters, Collection Letters, Office Memorandum.

UNIT-V Report Writing & Oral Presentation

Introduction to a Proposal, Short Report and Format Report, Report Preparation .
Principles of Oral Presentation, Factor Affection Presentation, Sales Presentation, Training Presentation, Conducting Surveys, Speeches to Motivate, Effective Presentation Skills, Interviewing Skills:
Appearing in Interviews, Conducting Interview, Writing resume, and Letter of Application.

Text Books/ Reference Books:

1. English for Competitive Examinations, Prof. R.P.Bhatnagar, Macmillan Publications.
2. Effective Technical Communication, M Ashraf Rizvi, Tata McGraw Hil (New Delhi)
3. English for Engineers: Made Easy, Aeda Abidi & Ritu Chaudhary, Cengage Learning, (NewDelhi)
4. Communication Skills for Engineers and Scientists, Sangeeta Sharma & Binod Mishra, PHI Learning Pvt. Ltd.
5. "Current English Grammar and Usage with Composition" by R.P. Sinha, Oxford University Press (New Delhi).

BCA 104: Mathematics – I

Course Objective:

To enable Professional undergraduate students to understand the importance of Mathematics in computer science.

UNIT-I Matrices and Determinants

Matrix, Types of Matrix, Operations on Matrices, Subtraction of Matrices, Multiplication of Matrices, Determinants, Inverse of a Matrix, Solving Simultaneous Equation using Determinants, Properties of Determinants, Difference between Matrices and Determinants.

UNIT-II Mathematical Logic

Definition, Statement, truth Value, Truth Table, Compound Statements, Statement, Compound Statement, Connectives, Tautology, Contradiction and Contingency, Laws of Algebra, Identity, Commutative, Complement, Double Negation, Associative, Distributive, Absorption, Demorgan's.

UNIT-III Set Theory

Definition of a Set, Standard Sets, Representation of set, Tabular Form/Roaster Method, Rule Method, Descriptive Form, Types of Sets, Finite Set, Empty or Null, Subset, Proper Subset, Improper Subset, Infinite, Disjoint, Overlapping, Universal, Equal, Complement, Equivalent, Illustration of Various Sets, B c Operations on Sets, Properties of Set.

UNIT-IV Differential Equation of First Order and First Degree

Derivative of a Function, Standard Derivatives, Derivatives of Composite Functions, Properties of Inverse Trigonometric Functions, Rules of Differentiation, Some Other Function, Higher Order Derivatives, Differential Equations, Application of Differential Equations: Problems on Growth and Decay.

Partial and Successive Differentiation

The Difference between Partial Differentiation and Ordinary Differentiation, Partial Differentiation, Rules of Partial Differentiation, Higher Order Partial Derivatives, Successive Differentiation, Euler's Theorem.

UNIT-V Mean Value Theorem

Rolle's Theorem, Mean Value Theorem, Some Important Facts Related to Mean Value Theorem.

Extreme Values of Function of Two Variables & its Application Extrema, Applied Maximum and Minimum Problems (Optimization Problems)

Text Books/ Reference Books:

1. Kolman, Busby and Ross, "Discrete Mathematical Structure", PHI, 1996.
2. H.K. Dass, "Advanced Engineering Mathematics"; S.Chand & Co., 9th Revised Ed., 2001.
3. S.K. Sarkar, "Discrete Maths"; S. Chand & Co., 2000



Second Semester Examination

CODE NO.	SUBJECT	Credits
BCA 201	Computer organization & Architecture	3
BCA 202	Problem Solving Techniques	3
BCA 203	Data Base Management System	3
BCA 204	Mathematics-II	3
Practical		
BCA 205	General proficiency lab	2
BCA 206	Oracle 10g lab	2

BCA 201 Computer Organization & Architecture

Course Objective

1. To conceptualize the basics of organizational and architectural issues of a digital computer.
2. To analyze performance issues in processor and memory design of a digital computer.
3. To understand various data transfer techniques in digital computer.
4. To analyze processor performance improvement using instruction level parallelism

UNIT-I

Number system, Binary arithmetic, Gray code, BCD, Logic Gates, Boolean Algebra, K-Map simplification, SOP forms, POS forms, Half adder, Full adder, Flip-Flops (SR, JK, D&I, Counters, Registers.

UNIT-II

Basic computer architecture, Functional Organisation, Register organization, Arithmetic and logic unit, Pipeline, Central processing unit, Instruction formats, Addressing modes, Data transfer and manipulation, Interrupts, RISC CISC architecture.

UNIT-III

Register transfer and micro-operations, Register transfer language (RTL), Arithmetic, Logic and Shift micro-operations, Micro-program Control Organisation; Control memory, Address sequencing, Micro-program sequencer, Addressing Mode.

UNIT-IV

Memory and storage; Processor Vs Memory speed, High-speed memories; Cache memory, Direct mapping. Set Associative Mapping, Fully Associative Mapping. Associative memory, Interleaved memory, Virtual memory and Memory management hardware.

UNIT-V

Input/output Organisation: Peripheral devices. I/O interface, Asynchronous Data Transfer: Strobe control, Handshaking Data transfer schemes (Programmed, Interrupt Initiated, DMA transfer), I/O Processor

Text Books/ Reference Books:

1. Computer System Architecture by M Morris Mano.
2. William Stallings, Computer Organization and Architecture, 4th Edition, Prentice Hall of India Private Limited, 2001
3. Harry & Jordan, Computer Systems Design & Architecture, Addison Wesley, Delhi, 2000.

BCA 202 Problem solving Techniques

Course Objective:

Work through the problem-solving process of identifying the problem, generating and implementing a solution, and confirming the elimination of the problem. Use different critical thinking and information analysis skills such as reasoning, logic, quantitative analysis, and qualitative analysis.

UNIT I : INTRODUCTION TO PROGRAMMING

Introduction to computing – building blocks for simple programs – problem to program – Decision structures – loop structures – problem analysis – programming style – documentation and testing.

UNIT II : PROGRAMMING PARADIGMS

Procedural – functional – recursive – rule-based – structured programming. Programming life cycle phases – problem solving – implementation – maintenance – pseudo code representation – flow charts.

UNIT III : C PROGRAMMING FUNDAMENTALS

Structured program development – Data types – operators – expressions – control flow – arrays and pointers – functions – Input – output statements – storage classes.

UNIT IV : ADVANCED FEATURES

Strings - Recursion – structures – unions – bit manipulations – enumerations – file processing – fundamental data structures.

UNIT V : ALGORITHMS

Algorithm characteristics, algorithm design steps, algorithmic efficiency – complexity of algorithms, algorithm analysis.

Text Books/ Reference Books:

1. Kernigan Brian W., and Dennis M. Ritchie, “The C Programming Language”, Second Edition, Prentice Hall, 1988.
2. Deitel and Deitel, “C How to program”, Prentice Hall, 1994. Cormen, Leiserson, Rivest, Stein “Introduction to algorithms”, McGraw Hill publishers, 2002.
3. Kernigan Brian W., and Dennis M. Ritchie, “The C Programming Language”, Second Edition, Prentice Hall, 1988.
4. Deitel and Deitel, “C How to program”, Prentice Hall, 1994.

BCA 203 Database Management Systems

Course Objectives

1. To introduce the fundamental concepts of database systems.
2. To acquaint the students with the use of current relational database systems.
3. To build a solid foundation for advanced studies in database area.

UNIT-I Introduction

Purpose of database, data abstraction, data model. instance & schemas, data independence, data definition language, data manipulation language, database manager. Database administration.

UNIT-II Entity Relationship Model

Entity & Entity set, relationship set, mapping constraints, candidate & primary key, entity relationship diagram, reducing E-R diagram to tables.

UNIT-III Relational Model

Concepts of relational model, integrity constraints, extension & intension, relational algebra, relational calculus, commercial query language, modifying the database, comments on relational model.

UNIT-IV DBMS based on Relational Model

Introduction, the mapping operation, data manipulation facility, data definition facility, data control facility.

UNIT-V Normalization & Oracle Ingress or Sybase

Introduction to functional dependence, normalization-1NF, 2NF, 3NF, BCNF, 4NF, 5NF. Creation of tables, modification of tables, DDL command for RDBMS, SQL command for RDBMS, command language.

Text Books/ Reference Books:

1. Korth, Silbertz, Sudarshan, "Database Concepts", McGraw Hill
2. Elmasri, Navathe, "Fundamentals of Database Systems", Addison Wesley
3. Leon & Leon, "Database Management System", Vikas Publishing House.
4. Ramakrishnan, Gehrke, "Database Management System", McGraw Hill

BCA 204: Mathematics - II

Course Objective:

To enable to professional undergraduate students to understand the importance of Mathematics in computer science.

UNIT-I : Functions

Types of Function, Composite, Even and Odd, Inverse.

Mathematical Induction and Recurrence

Principle of Mathematical Induction, Induction Example, Recursive Definitions, Recurrence, Solving Recurrence, Linear Recurrence.

Relation

Properties of Relation, Diagraphs, Using Digraphs to Model Information, Cartesian Product.

UNIT-II : Set Theory

Types of Set, Venn Diagrams, Set Operation, Set Identities.

UNIT-III : Boolean Algebra and Logic Gates

Boolean Algebra, Basic Logical Operations (Logic Variables), NOT Operator (Inversion), AND Operator, OR Operator, Logic Gates, Universal Gates, Constructing Gates, Fundamentals of Boolean Algebra, Boolean Operators, Laws of Boolean Algebra, Commutative Laws, Associative Laws, Distributive Laws, Switches and Inverter, Boolean Algebra Rules.

UNIT-IV : Graphs

Terminologies, Representation, Uses of Graphs, Some Important Graphs, Degree Sequence, Graphical Degree Sequence, Isomorphism in Graphs, Isomorphism by Using Adjacency Matrix, Applicability of Graphs.

Connected and Disconnected Graphs

Connected and Disconnected Graph, Walk, Trail, Path, Cycle (Circuit), Connected Graph, Weight Graph, Connectivity.

UNIT-V : Logic

Statement/Proposition, Truth Value, Venn Diagrams, Compound Statements and Logical Connectives, Truth Tables, Tautology, Contradiction and Contingency, Logical Equivalence, Negation of a Compound Statement, Some Standard Equivalent Statements in Logic, The Use of Logic in Circuits, Quantifiers.

Text Books/ Reference Books:

1. H.K. Dass, "Advanced Engineering Mathematics"; S.Chand & Co., 9th Revised Edition, 2001.
2. S.K. Sarkar, "Discrete Mathematics"; S. Chand & Co., 2000.
3. S.S. Sastry, "Numerical Analysis"; Prentice Hall of India, 1998.
4. H.K. Dass, "Advanced Engineering Mathematics"; S.Chand & Co., 9th Revised Edition, 2001.



Third Semester Examination

CODE NO.	SUBJECT	Credits
BCA 301	Object Oriented Programming using C++	3
BCA 302	Introduction to Financial Accounting	3
BCA 303	Data Structure & File System using C	3
BCA 304	Data Communication & Computer Network	3
Practical		
BCA 305	C++ lab	2
BCA 306	Data Structure lab using C	2

BCA 301 Object Oriented Programming Using C++

Course Objectives

1. To explain the difference between object oriented programming and procedural programming.
2. To explain the principles of object-oriented programming that includes concepts of class, objects, and features of OOP.
3. To explain the features of OOP at the class and object level that includes abstraction, encapsulation, information hiding and the use of reusable components to solve the problems.

UNIT-I

OOP paradigm, Advantages of OOP, Comparison between functional programming and OOP approach, characteristics of Object-oriented Language objects, Class, Inheritance, Polymorphism, and abstraction, encapsulation, Dynamic Binding, Message passing.

UNIT-II

Introduction to C++, Identifier and Keywords, constants, C++ Operators, Type conversion, variable declaration, Statement, expressions, User defined data types, Conditional expression (For, While, Do-While) loop statements, breaking control statements (Break, continue).

UNIT-III

Defining a function, types of functions, inline functions, Call by value and Call by reference, Pre-processor, Header files and standard functions, Structures, Pointers and structures, Unions, Enumeration.

UNIT-IV

Classes, Member functions, Objects, Array of objects, Nested classes, Constructors, Copy constructors, Destructors, Inline member functions, Static class member, friend functions, Dynamic memory allocation.

Inheritance: Single inheritance, Multi-level inheritance, Hierarchical, virtual base class, Abstract classes, Constructors in Derived classes, Nesting of classes.

UNIT-V

Function overloading, Operator overloading, Polymorphism, Early binding, Polymorphism with pointers, Virtual functions, Late binding, Pure virtual functions, Opening and Closing of files, Stream member functions, Binary file operations, Structures and file operations, classes and file operations, Random access file processing.

Text Books/ Reference Books:

1. D . Parsons, "Object Oriented Programming with C++", BPB Publication.
2. Let us C++ by **Yaswant Kanetkar**
3. Scheldt Herbert, "C++: The Complete Reference", 4th Ed., Tata McGraw Hill,
4. R. Lafore, "Object Oriented Programming using C++", Galgotia Publications, 2004.

BCA 302 Introduction to Financial Accounting

Course Objectives

The primary objective of the course is to familiarize the students with the basic accounting principles and technique of preparing and presenting the accounts for user of accounting for user of accounting information.

UNIT-I : MEANING AND SCOPE OF ACCOUNTING

Need, Development and Definition of Accounting; Book-keeping and Accounting Persons interested in Accounting; Disclosures; Branches of Accounting; Objectives of Accounting.

UNIT-II : ACCOUNTING PRINCIPLES & ACCOUNTING TRANSACTIONS

International Accounting Standards (Only Outline): Accounting Principles; Accounting Standards in India. Accounting Cycle; Journal; Rules of Debit and Credit; Compound Journal Entry: Opening Entry: Relationship between Journal and Ledger, Rules Regarding Posting; Trial Balance Sub Division of Journal.

UNIT-III : CAPITAL AND REVENUE

Classification of Income; Classification of Expenditure; Classification Receipts. Accounting Concept of Income; Accounting Concepts and Income Measurement Expired Cost and Income Measurement. Final Accounts: Profit and Loss Account; Balance Sheet: Adjustment Entries. Rectification of Errors; Classification of Errors; Location of Errors; Suspense Account: Effect on Profit.

UNIT-IV DEPRECIATION PROVISIONS AND RESERVES

Concept of Depreciation; Causes of Depreciation; Depreciation, Depletion, Amortization and Dilapidation, Depreciation Accounting; Methods of Recording Depreciation; Methods for Providing Depreciation; Depreciation of Different Assets; Depreciation of Replacement Cost; Depreciation Policy as per Accounting Standard; Depreciation Accounting; Provisions and Reserves.

UNIT-V ACCOUNTS OF NON-TRADING INSTITUTIONS

Not for Profit Organisation, Financial Statements, Income and Expenditure Account Balance Sheet.

Text Books/ Reference Books:

1. Introduction to Accounting T. S. Grewal ,S. Chand& Co.
2. Advanced Accountancy S.N. Maheshwari
3. Advanced Accountancy Shukla & Shukla . S. Chand & Co
4. Financial Accounting , Shah, Oxford Press
5. Financial Accounting Needles, Powar, Cengage learning

BCA 303 Data Structures & File System Using C

Course Objectives:

In this course student will become familiar with Algorithm analysis: Trees, Graphs, searching and sorting and files.

UNIT-I

Characteristics of a Good Program, Techniques of a Problem Solving, Structured Programming, Modular Programming, Top-Down Programming, Bottom-Up Programming.

Concept of Data Types and Data Structures

Concept of Data, Data Types, Data Structure, Primitive Data Type, Logical Versus Physical Representation, Primitive and Data Structures, Operations on the Data Structures.

UNIT-II CONCEPTS OF POINTERS

Declaring and Initializing a Pointer, Accessing a Variable Using Pointer, Static Variable.

UNIT-III ARRAYS, STACKS, QUEUES AND LINKED LIST

Arrays, One-Dimensional Array, Two-Dimensional Arrays, Records, Defining a Structure, Stack, Stack as an Array, Operation on Stack, Stack as a Limited List, Recursion, Queue, Operation on Queue, Queue as an Array, Linked Implementation of a Queue, Implementation of a Queue as a Circular Linked List, Dequeue, Priority Queue, Linked List, Advantages of Linked List Over Arrays, Types of Linked List, Operations on Singly Linked List, Circular Linked List, Application on Linear Linked List, Doubly Linked List or Two Chains, Operation on a Doubly Linked List.

UNIT-IV TREES

General Trees, Binary Tree, Properties of Binary Trees, Implementation of Binary Trees, Binary Tree Traversal, Methods, Binary Tree Traversal Algorithms using Stacks, Binary Search Tree.

UNIT-V SEARCHING AND SORTING

Searching, Algorithm for Linear Search in an Unsorted Array, Algorithm for Linear Search in a Sorted Array, Algorithm Binary Search on Array given in Ascending Order, Sorting, Algorithm Insertion Sort, Algorithm Selection Sort for Ascending Order, Algorithm Bubble Sort for Ascending Order.

Text Books/ Reference Books:

1. Horowitz and Sahani, "Fundamentals of data Structures", Galgotia Publication Pvt. Ltd., New Delhi.
2. R. Kruse et al, "Data Structures and Program Design in C", Pearson Education Asia, Delhi-2002
3. A. M. Tenenbaum, "Data Structures using C & C++", Prentice-Hall of India Pvt. Ltd., New Delhi.
4. Yashwant Kanetkar " Test your C Skills " , BPB Publications

BCA 304: Data Communications and Networking

Course Objectives:

This course introduces the basics of data communication and networking. Students will develop an understanding of the general principles of data communication and networking as used in networks. It also includes an activity of setting up a small local area network. The goal of this course is that the student will develop an understanding of the structure of network, its elements and how these elements operate and communicate with each other.

UNIT-I : Introduction

Overview of computer network, seven-layer architecture, TCP/IP suite of protocol, etc. Mac protocols for high-speed LANs, MANs & WIRELESS LANs. (For example, FDDI, DQDB, HIPPI, Gigabit Ethernet, Wireless Ethernet etc.) Fast access technologies. (For example, ADSL, Cable Modem, etc.)

UNIT-II : IPv6

Why IPv6, basic protocol, extension & option, support for Qos, Security, etc, neighbour discovery, autoconfiguration, routing. Change to other protocols. Applications programming interface for Ipv6. 6bone.

UNIT-III :

Mobility in network. Mobile. Security related issues. IP Multicasting. Multicasting routing protocols, address assignments, session discovery, etc.

UNIT-IV :

TCP extensions for high-speed networks, transaction -oriented application, other new option in TCP.

UNIT-V :

Network security at various layers. Secure-HTTP, SSL, ESP, Authentication header, key distribution protocols. Digital signatures, digital certificates.

Text Books/ Reference Books:

1. Forouzan, "Data Communication and Networking", TMH, 4th Edition
2. A.S. Tanenbaum, "Computer Networks", PHI, 4th Edition.
3. W. Stallings, "Data and Computer Communication", Macmillan Press.
4. Comer, "Computer Networks and Internet", PHI.



Fourth Semester Examination

CODE NO.	SUBJECT	Credits
BCA 401	JAVA Programming	3
BCA 402	Operating System	3
BCA 403	Web Technologies	3
BCA 404	Management Process & Organizational Behavior	3
Practical		
BCA 405	Java Programming Lab	2
BCA 406	Web Technology Lab	2

BCA 401 – Java Programming

Course Objectives

1. To introduce the basic concepts of Java language.
2. To understand the working of JVM and JDK.
3. To familiarize with OOP concept of class, object, and inheritance
4. To introduce new concepts like packages, multithreading, exception handling, and applets.

UNIT I: INTERNET

Introduction, Advantage of Internet, Disadvantage of Internet, Connecting to Internet, Choosing an Isp, Internet Services, E-Mail Concepts, Sending and Receiving Secure E-Mail, Voice and Video Conferencing.

UNIT II: CORE JAVA

Operator, Data type, Variable, Arrays, Control Statements, Methods & Classes, Inheritance, Package and Interface, Exception Handling, Multithread Programming, I/O (input/Output) System, Java Applet, Networking, Event Handling, Introduction to AWT, AWT controls, Layout managers, Menus, Images and Graphics.

UNIT III: JAVA SWING

Swing, Creating a Swings Applet and Application, Pluggable Look and Feel, Lables, Text fields, Button, Checkboxes and radio button, List and Combo box, Scroll Panes and Scroll Bars, Progress Bar, Menus and Toolbars, Layered Panes, Tabbed Panes, Split Panes, Dialog Boxes, JDBC, connectivity model, JDBC/ ODBC Bridge, java.sql package, Connectivity to database.

UNIT IV: JAVA BEANS

Application Builder tool, The bean developer kit(BDK), JAR file, Developing a simple bean, using bound properties, The java Bean API, Seesion Beans, Entity Beans, Enterprise Java beans(EJB), RMI.

UNIT V: JAVA SERVLET

Servlet basic, Servlet API basic, Life cycle of a Servlet, Running Servlet, Debugging Servlets, Thread-safe Servlets, HTTP Redirects, Cookies, Java Server Page (JSP),

Text Books/ Reference Books:

1. E. Balagurusamy, Core Java, TMH
2. Herbert Schieldt, The Complete Reference:Java, TMH,
3. Rich raposa, Learning Java, Wiley
4. Horstmann, Core Java, Addison Wesley

BCA 402 Operating System & Linux Administration

Course Objective:

To learn the fundamentals of Operating Systems. Multiprocessing (SMP), Microkernel, Solaris Thread and SMP Management, Virtual Memory: hardware and control structures, Operating System Software, UNIX and Solaris Memory Management.

UNIT I: KNOW ABOUT OPERATING SYSTEM

Operating System, Duties Of Operating System, Development Of Operating System, Serial Processing, Batch Processing, Multiprogramming, Types Of Operating System, Real-Time Operating System, Multi -User And Single-User Operating Systems, Multi-Tasking And Single-Tasking Operating Systems, Distributed Operating System, Embedded System, Network Operating System, Structure Of Operating System, Layered Approach, Virtual Approach, Kernal Approach, Client- Server Model, Operating Systems Services, Program Execution, I/O Operations, File System Manipulations, Communications.

UNIT II : CPU SCHEDULING

Process, Scheduling, Quque, Types, Long Term Schedulers, Medium Term Scheduler, Short Term Schedulers, Scheduling Structures, Context Switches, Dispatches, Scheduling, First Cum First Serve Scheduling, Shortest Job First Serve Scheduling, Priority Scheduling, Round Robin Scheduling, Multi-Level Queue Scheduling

UNIT III: MEMORY MANAGEMENT

Resident Monitor, Memory Management, Hardware Memory Management, Memory Management Problems, Manual Memory Management, Automatic Memory Management, Memory Management with Fixed Partitioning, Memory Management with Dynamic Partitioning, Paging, Virtual Memory, Demand Paging, Memory Segmentation, Inter Process Communication and Synchronization, Deadlock.

UNIT IV: FILE MANAGEMENT SYSTEM

File System, Aspects of File System, Types of File System, File Management System, File Management System Architecture, Basic File Organization Technique, Disk File Allocation Method, Directory System, File Protection.

UNIT-V INTRODUCTION to LINUX

Introduction to Linux, Features, Importance, History, Evolution, File handling Utilities, cat, rm, cd, cp, is, mkdir, chown, chmod, chgrp, pg, more, head, tail, who, echo, pwd, cal Commands.

Text Books/ Reference Books:

1. Silberschatz and Galvin, "Operating System Concepts", Pearson, 5th Ed., 2001
2. Sumitabha Das, "Unix Concepts and Applications", TMH, 4th Ed., 2009.
3. Robert Love, "Linux System Programming" ,O'Reilly Media, 2nd Ed., 2007.
4. YashwantKanetkar , "Unix Shell Programming", BPB, 7th Ed., 2007.

BCA 403 Web Technologies

Course Objective:

Web Technologies is the study of Internet Concepts, structure that deals with today's internet needs. The main objective of the course is to introduce the whole range of web technologies starting from HTML, DHTML, Java Script, VBScript, and Dreamweaver. It also gives a brief description on Internet. Through the various examples the course will describe how to design specific page, dynamic web page, forms and frames. It also focuses on the practical aspects of these technologies with open source language such as PHP.

UNIT I : INTERNET AND INTERNET CONNECTIVITY

Introduction, Internet, Growth of the Internet, Safeguards, Client Server System, Servers Should be Powerful and Reliable, Intricacies Involved, Active Close and Active Open, Sockets, Internet Domains and Addresses Name System, TCP/IP Internet Domain Names, Official and Unofficial Internet Domain Names, Mapping Domain Names to Addresses, Domain Name Resolution, Name Caching, Time to Live, Abbreviation of Domain Names, Dialup Networking, Access Criteria, The Internet Service Provider (ISP) , Newer Technologies

UNIT II : INTRODUCTION TO WEB DESIGN

What is Web Designing? , Web Design Basics, Elements of Good Design, The Elements of Design, The Principles of Design, The Web is Not Print
Basics of Web Designing
Introduction, Methodology, Getting Started with Web Designing, Step 1: HTML, Step 2: WYSIWYG Editors, Recommendations for Software and Tool for Designing Web, Step 3: Hosting, Free Host Servers, Paid Host Servers, Step 4: Publish (upload)

UNIT III : INTERNET SERVICES

Introduction: The Internet, World Wide Web (WWW) , Web Browsing, Browser Software Access The Web, Start Up a Web Browser, Using the Web Browser, Bookmarks, Cookies, Browser in Detail, The Elements of Web Navigation, Searching, News groups, News Group Hierarchies, Types of Newsgroups, How Newsgroups Work? Binary Newsgroups, Mailing Lists, Chat Rooms, E-Mail, E-Mail Operation: , Internet Fax, File Transfer Protocol (FTP) , FTP Commands, FTP File Types, FTP Login, TELNET

UNIT IV : HTML

Introduction, HTML, Formatting, Text Formatting, Citations, Quotations, and Definition Tags, Character Entities, Hyperlinks, URLs, Background Graphics, Background Colour, External Images, Sounds, and Animations, Frames, Tables, Tables for Non tabular Information, Lists, Forms, Image maps, The Use map Attribute in An IMG Element, The Common Gateway Interface (CGI) , Server-Side Processing, Structure of a CGI Script, CGI For Mail, Security, Cascading Style Sheets (CSS), Adding CSS to HTML Documents,

UNIT V : CLIENT AND SERVER-SIDE SCRIPTING

Introduction, Java Server Pages (JSP) , JSP Environment, Using JSP Tags, Java beans, Implicit Objects, JavaScript, Elements of JavaScript, JavaScript Objects: , Document Object Model (Dom) , Web Technologies
Web 2.0

Introduction: Web 2.0, The Internet as a Platform, Social Networks and User Participation, Significance of Web 2.0, Web 2.0 in the Workplace: Enterprise 2.0, Hackers have Changed, Organizations are not Prepared for Web 2.0 Threats, How Security Challenges Change with Web 2.0? Compromised Websites, Malware Access, New Client-Side Technologies, XML Syndication : Feeds for Wikis and Blogs, About Trackbacks, Mashups, Data Leak Vulnerabilities, Blue Coat Web 2.0 Layered Security Solutions, Preventing Malware: Layered "Defense in Depth", Dynamic URL Filtering with Web Pulse and Web Filter, Web Pulse

Ecosystem URL Categorizing, Web Filter: Filtering & Blocking Unwanted Web Content.

Text Books/ Reference Books:

1. 'Internet Complete Reference', Young, Tata McGraw Hill
2. 'Web Design; Complete Reference ', Powell, Tata McGraw Hill
3. 'Core Web Programming "; Brown, Pearson Education
4. Tim Converse, Joyce Park "PHP Bible", 2nd Edition

BCA 404 Management Process & Organizational Behavior

Objectives

1. To provide fundamental knowledge and exposure to the concepts, theories and practices in the field of management.
2. To give an introduction to the way in which a firm can develop its managerial thinking, mission and strategy.

UNIT I : MANAGEMENT : AN INTRODUCTION

Concept & functions of Management, evolution of management theories- scientific management, bureaucracy, behavioral approach, Quantitative approach and systems approach.

UNIT II : ESSENTIALS OF MANAGEMENT

Planning – meaning , types of plans, planning process. Organizing – Meaning and, types of Organization. Staffing- Meaning and steps involved in staffing. Direction - Meaning, Requirement of effective direction. Communication - Types & Importance. Control : Meaning, process and techniques.

UNIT III : INDIVIDUAL BEHAVIOR

Personality: Meaning & Theories. Perception- Meaning, Perceptual process. Attitude-Meaning and dimensions of Attitude. Learning- Meaning and Approaches to learning- classical Conditioning, Operant Conditioning, Social Learning.

UNIT IV : INTERPERSONAL AND TEAM BEHAVIOR

Motivation: meaning, Theories of motivation- Maslow's hierarchy of needs theory, Herzberg's Dual-Factor Theory, Mc Clelland's Achievement Motivation Theory, Equity, goal-setting theories.

Conflict: Stages of Conflict, Strategies for managing conflict. Leadership: Leadership styles, Traits and skills of Leaders, transformational, transactional & Charismatic Leadership.

UNIT V : ORGANIZATION PROCESS

Culture: Meaning and Functions of Organizational culture, managing Organizational culture.

Organizational structure: Elements of organization Structure- Centralization and decentralization, Differentiation and Integration, Mechanistic and Organic structure.

Organizational design structures- Traditional and modern Organizational structures.

Meaning and importance of organizational change.

Text Books/ Reference Books:

1. Robbins, Judge & Sanghi, "Organizational behavior 12th Prentice hall New Delhi
2. L. M. Prashad – Principal of Management, Sultan Cahnd & sons , New delh



Fifth Semester Examination

CODE NO.	SUBJECT	Credits
BCA 501	Java2 Enterprise Edition	3
BCA 502	Software Engineering	3
BCA 503	E-Commerce	3
BCA 504	System Software	3
Practical		
BCA 505	J2EE Lab	2
BCA 506	Software Engineering Lab	2

BCA 501 – Java 2 Enterprise Edition

Course Objectives

1. To introduce the basic concepts of Event handling, AWT and Swings.
2. Introduction to JSP processing, JSP application design and Sharing Session and Application data.
3. To familiarize with concepts of Servlet, JDBC, RMI, Java Beans and EJB.

UNIT I

Event Handling: Different Mechanism, the Delegation Event Model, Event Classes, Event Listener Interfaces, Adapter and Inner Classes, Working with windows, Graphics and Text, using AWT controls, Layout managers and menus, handling Image, animation, sound and video, Java Applet.

Swing : Introduction to JFC (Java Foundation Classes), Features of Swing, Comparison with AWT, Advanced Control.

UNIT II

Introduction Of Servlets, Life cycle of servlet, Handling HTTP Get Request, Handling HTTP Post Request.

JSP: Introduction to JSP, JSP processing, JSP Application Design, Tomcat Server, Implicit JSP objects, Conditional Processing, Declaring variables and methods, Error Handling and Debugging, Sharing data between JSP pages- Sharing Session and Application Data.

UNIT III

JDBC: Introduction to DBMS & RDBMS, JDBC API, JDBC Application Architecture, Obtaining a Connection, JDBC Models: Two Tier and Three Tier Model, ResultSet, Prepared Statement, Callable Statement.

UNIT – IV

RMI (Remote Method Invocation): Introduction, Steps in creating a Remote Object, Generating Stub & Skeleton, RMI Architecture, RMI packages.

Java Bean: Introduction, Bean Architecture, Using the Bean Development Kit, Creating simple bean-properties, methods and events, Packing beans- the manifest & the jar, Java bean package, Introduction to NetBean.

UNIT V

EJB Fundamentals: Introduction to J2EE architecture, EJB – introduction, understanding stateful and stateless session beans life cycle, writing stateless session bean, introduction to entity beans, writing first entity bean.

Text Books/ Reference Books:

1. Patrick Naughton and Herbert Schildt, “Java-2: The Complete Reference”, TMH, 1999.
2. Joe, “The Complete Reference: J2EE”, TMH.
3. Hans Bergsten, “Java Server Pages”, SPD O’Reilly
4. Bryan Basham, “Head first servlet and JSP”, O’Reilly
5. Marty Hall, “Core Servlets and JSP”, Sun Micro Systems

BCA 502 : Software Engineering

Course Objectives :

Course is intended to help students to develop skills that will enable them to construct software of high quality – software that is reliable, and that is reasonably easy to understand, modify and maintain. The concept covered in syllabus are

- The software development process.
- Software requirements and specifications.
- Software design techniques.
- Techniques for developing large software systems.
- CASE tools and software development environments.
- Software testing, documentation and maintenance.

UNIT-I : INTRODUCTION

Introduction to software engineering, Importance of software, The evolving role of the software, Software characteristics, Software components, Software application, Software crisis, Software engineering problems, Software development life cycle, Software process.

UNIT-II : SOFTWARE REQUIREMENT SPECIFICATION

Analysis principles, Water fall model, The incremental model, Prototyping, Spiral model, Role of management in software development, Role of matrices, and measurement, Problem analysis, Requirement specification, Monitoring and Control.

Software Design: Design principles, Problem portioning, Abstraction, Top down and Bottom up-Design, Structured approach, Functional versus object-oriented approach, Design specification and Verification, Monitoring and control, Cohesiveness, Coupling, Forth generation techniques, Functional independences, Software architecture, Transaction and Transform mapping, Component-Level Design, Forth generation techniques.

UNIT-III : CODING

Top-Down and Bottom-Up programming, Structured programming, Information hiding, Programming style and internal documentation.

Testing: Testing principles, Levels of testing, Functional testing, Structural testing, test plane, test case specification, Reliability assessment, Software testing strategies, Verification and Validation testing, Integration testing, Alpha & Beta testing, System testing and debugging.

UNIT-IV : SOFTWARE PROJECT MANAGEMENT

The management spectrum (The people, the product, the process, the project), Cost estimation, Project scheduling, Staffing, Software configuration management, Structured Vs Unstructured maintenance, Quality assurance, Project monitoring risk management.

UNIT-V : SOFTWARE RELIABILITY & QUALITY ASSURANCE

Reliability issues, Reliability metrics, Reliability growth modelling, Software quality, ISO 9000 certification for software industry, SEI capability maturity model, Comparison between ISO & SEI CMM.

Text Books/ Reference Books:

1. K. K. Aggarwal & Yogesh Singh, “Software Engineering”, 2nd Ed., New Age International, 2005.
2. R. S. Pressman, “Software Engineering – A practitioner’s approach”, 5th Ed., McGraw Hill Int. Ed., 2001.
3. Somerville, “Software Engineering”, Addison Wesley, 2002.
4. Stephen R. Schach, “Classical & Object Oriented Software Engineering”, IRWIN, 1996.
5. James Peter, W. Pedrycz, “Software Engineering: An Engineering Approach”, John Wiley & Sons.

BCA 503 E- Commerce

Course Objectives:

To make the student aware about the basics of E-commerce, its processes and some of the services/products supporting these processes. After studying this course, the students shall be able to understand the basic related business processes like B2B, C2B & B2C involved in the area of E-Commerce with an overview of the technical support for the processes.

UNIT I : OVERVIEW

Definition, Scope of Electronic Commerce, Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce and E-Commerce Perspective.

UNIT II: BUSINESS STRATEGY AND B TO B E-COMMERCE

Porter Value Chain Model, Inter Organizational Value Chains, Porter Model for Competitive Forces, E-Commerce Implementation and Evaluation, Inter Organizational Transactions, Transaction Types, Credit Transaction Trade Cycle, Case Study of Airline Booking System.

UNIT III : ELECTRONIC DATA INTERCHANGE

Definition and Benefits, Technology, Standards, Communications, Implementations, Agreements and Securities, Trading Patterns And Transactions. E-Commerce Framework: Framework, E-Commerce Media Convergence, Anatomy of E-Commerce, Consumer Applications.

UNIT IV: CUSTOMER RELATION MANAGEMENT (CRM)

Introduction to Crm - Definition and Overview, Role and Importance of Crm; Crm Architecture, Supporting Requirements of The Next-Generation Crm Infrastructure, Challenges In Crm Implementation, Next-Generation Crm Trends.

UNIT V: E-COMMERCE AND WORLD WIDE WEB

Architectural Framework for E-Commerce, World Wide Web As The Architecture, Web Background-Hypertext Publishing, Technology Behind The Web, Securities And The Web, E-Commerce Website Development.

Text Books/ Reference Books:

1. Lexis Leon, "Enterprise Resource Planning", TMH
2. Brady, Manu, Wegner, "Enterprise Resource Planning", TMH
3. Lexis Leon, "Enterprise Resource Planning", TMH
4. Brady, Manu, Wegner, "Enterprise Resource Planning", TMH

BCA 504 SYSTEM SOFTWARE

Course Objective:

To view some of the major tasks of the system software of a computer system, focusing on internal working of the hardware and software interface of a typical system.

UNIT-I

System software introduction, Evolution of Components of a Programming System, General Machine Structure - Memory, Registers, Data and Instructions. Machine Language - No Looping, Address modification using instruction as Data and Index registers, Looping. Assembly Language Program using Literals and pseudo -ops.

UNIT-II

Introduction to Assemblers - General design procedure, Design of Assembler- Statement of Problem, Data Structures, Format of Databases, Algorithm (2-pass assembler) in brief with flowchart

UNIT-III

Macro Language and the Macro Processor: Macro instructions, Features of Macro facility - Macro instruction argument, Conditional Macro expansions, Macro call within Macros and Implementation- Two-Pass macro processor with flowchart

UNIT-IV

Loaders and Linkers: - Loader Schemes, Compile and Go Loader, General Loader scheme, Absolute Loaders, Subroutine Linkages, Relocating Loaders, Direct-Linking Loaders, Binders, Linking loaders, Overlays, Dynamic Binders. Design of an Absolute Loader

UNIT-V

Introduction to Compilers: Different phases- Lexical Phase, Syntax Phase, Interpretation Phase, Optimization Phase, Storage Assignment Phase, Code Generation Phase and Assembly phase.

Text Books/ Reference Books:

1. D. M. Dhamdhare, "Systems Programming and Operating Systems", Second Revised Edition, Tata McGraw-Hill, 1999
2. Leland L. Beck, "System Software – An Introduction to Systems Programming", 3rd Edition, Pearson Education Asia, 2000.
3. M. Joseph "System Software", Laxmi Publications First edition, 2007



Sixth Semester Examination

CODE NO.	SUBJECT	Credits
BCA 601	C# & .NET Programming	3
BCA 602	Introduction to Linux & Shell Programming	3
Practical		
BCA 603	.NET Programming Lab	2
BCA 604	Linux & Shell programming	2
BCA 605	Project	8

BCA 601 C# & .NET Programming

Course Objective: Students will learn how to

1. Create, compile and run object-oriented C# programs using Visual Studio
2. Write and understand C# language constructs, syntax and semantics
3. Develop reusable .NET components via interface realization and standard design patterns
4. Leverage the major namespaces and classes of the .NET Framework
5. Access databases using Language Integrated Query (LINQ)

UNIT-I : THE .NET FRAMEWORK

Introduction, Common Language Runtime, Common Type System, Common Language Specification, The Base Class Library, The .NET class library Intermediate language, Just-in-Time compilation, garbage collection, Application, installation & Assemblies, Web Services, Unified classes.

UNIT-II : C# BASICS

Introduction, Data types, Identifiers, variables & constants, C# statements, Object Oriented Concepts, Object and Classes, Arrays and Strings, System Collections, Delegates and Events, Indexes Attributes, versioning.

UNIT-III : C# USING LIBRARIES

Namespace-System, Input Output, Multi-Threading, Networking and Sockets, Data Handling, Windows Forms, C# in Web application, Error Handling.

UNIT-IV : ADVANCED SERVICES USING C#

Web Services, Windows services, messaging, Reflection, COM and C#, Localization.

UNIT-V : ADVANCED FEATURES USING C#

Distributed Application in C#, XML and C#, Unsafe Mode, Case Study (Messenger Application)

Text Books/ Reference Books:

1. E. Balagurusamy, "Programming in C#", Tata McGraw-Hill,
2. C# 4.0 in Nut shell by O' Reilly
3. Beginning Visual C# by Rocks Publication
4. Robinson et al, "Professional C#", 2nd ed., Wrox Press, 2002.

BCA 602: Introduction to Linux & Shell Programming

Course Objective

1. comfortably use basic UNIX/Linux commands from the command line (from a terminal window)
2. organize and manage their files within the UNIX/Linux file system;
3. usefully combine UNIX/Linux tools using features such as filters, pipes, redirection, and regular expressions
4. know how to use UNIX/Linux resources to find additional information about UNIX/Linux commands.

UNIT-I : Operating System Fundamentals

Introduction Concepts: Operating system function and characteristics, historical evolution of operating Real time systems, Distributed systems, Methodologies for implementation of O/S service, system calls, system programs, Interrupt mechanisms.

UNIT-II : I/O System, File Management and Process Scheduling

File System: Function of the system, File access and allocation methods, Directory structure, file protection mechanisms, implementation issue, hierarchy of file, disk scheduling policies.

Process Scheduling: Process, PCB, state transition, Level of Scheduling Comparative study of scheduling algorithms

UNIT-III

Feature of UNIX, directory structure of UNIX, File structure of UNIX, concept of inodes. Logging into Unix, format of UNIX components, basis operations on files, filters and pipelines mail and communication commands.

UNIT-IV

Shell Script Types of shells, control structure for shells and for shells. Use of Editors, VI, EX & Ed.

Text Books/ Reference Books:

1. Sumitabha Das, "Unix Concepts and Applications", TMH, 4th Ed., 2009.
2. YashwantKanetkar , "Unix Shell Programming", BPB, 7th Ed., 2007.
3. Ellen Siever, Stephen Figgins, Robert Love, Arnold Robbins, "Linux in a Nutshell", O'Reilly Media, 6th Ed., 2009.
4. Robert Love, "Linux System Programming" ,O'Reilly Media, 2nd Ed., 2007.