BCA & B.SC IT COURSE CURRICULUM

Year-I

Semester I

Subject Wise Assessment

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*IA – Internal Assessment & EA – External Assessment

BCA-101 COMPUTER FUNDAMENTALS AND OFFICE AUTOMATION

Course Objectives: Learn basics of computer fundamental. Learn how to solve a given problem.

Course Contents:

UNIT I: Introduction to Computers
- Introduction, Characteristics of Computers, Block diagram of computer
- Types of computers (Mini Computers, Micro Computers, Mainframe Computers, Super Computers) and features
- Types of Programming Languages (Machine Languages, Assembly Languages, High Level Languages)
- Data Organization, Drives, Files, Directories.
- Types of Memory (Primary And Secondary) RAM ROM, PROM and EPROM.
- Secondary Storage Devices (FD, CD, HD, Pen drive) I/O Devices (Scanners, Plotters, LCD, Plasma Display)
- Number Systems, Introduction to Binary, Octal, Hexadecimal System Conversion, Simple Addition, Subtraction & Multiplication.

UNIT II: Algorithm and Flowcharts
- Algorithm: Definition, Characteristics
- Advantages and Disadvantages Examples
- Flowchart: Definition, symbols of flowchart
- Advantages and disadvantages with examples
UNIT III: Operating System and Services in O.S.
- Dos – History, files and directories, internal and external commands
- Batch Files, Types of O.S.

UNIT IV: Windows Operating Environment
- Features of MS – Windows, Control Panel, Taskbar, Desktop
- Windows Application, Icons, Windows Accessories
- Notepad, Paintbrush.

UNIT V: Editors and Word Processors
- Basic Concepts, Examples: MS-Word
- Introduction to desktop publishing, MS-PowerPoint

UNIT VI: Spreadsheets and Database packages
- Purpose, usage, command, MS-Excel, Creation of files in MS-Access
- Switching between applications

Suggested Books:
1. Fundamental of Computers – By V.Rajaraman (B.P.B. Publications)

BCA-102 PRINCIPLES OF MANAGEMENT

Course Objective: To provide a basis of understanding to the students with reference to working of business organization through the process of management.

Course Content:

UNIT I: Overview of Management
- Definition, Management
- Role of managers - Evolution of Management thought
- Organization and the environmental factors
- Trends and Challenges of Management in Global Scenario.

UNIT II: Planning
- Nature and purpose of planning
- Planning process - Types of plans – Objectives
- Managing by objective (MBO)
- Strategies, Types of strategies, Policies
- Decision Making, Types of decision, Decision Making Process,
- Rational Decision Making.

UNIT III: Organizing
- Nature and purpose of organizing
- Organization structure, Formal and informal groups I organization
- Line and Staff authority, Departmentation Span of control
- Centralization and Decentralization
- Delegation of authority
- Staffing, Selection and Recruitment
- Orientation, Career Development, Career stages
- Training, Performance Appraisal.

**UNIT IV: Directing**
- Creativity and Innovation
- Motivation and Satisfaction, Motivation Theories
- Leadership Styles, Leadership theories
- Communication, Barriers to effective communication
- Organization Culture, Elements and types of culture
- Managing cultural diversity.

**UNIT V: Controlling**
- Process of controlling, Types of control
- Budgetary and non-budgetary control Q techniques
- Managing Productivity, Cost Control, Purchase Control
- Maintenance Control, Quality Control, Planning operations.

**Suggested Books:**
1. Management: Principles and Practice” by S K Mondal (Jaico Publishing House; First edition (8 September 2011)

**BCA-103 PROGRAMMING PRINCIPLE & ALGORITHM**

**Course Objective:** The fundamental point in learning programming is to develop the critical skills of formulating programmatic solutions for real problems.

**Course Content:**

**UNIT I: Introduction to problem solving and Concept**
- Concept of Problem solving
- Problem solving techniques (Trail & Error, Brain Storming, Divide and Conquer) Steps in problem solving (Define Problem, Analyze Problem, Explore Solution)
- Algorithms and Flowcharts (Definitions, Symbols)
- Characteristics of an algorithm Conditionals in pseudo-code
- Loops in pseudo code
- Time complexity: Big-Oh notation, efficiency
- Simple Examples: Algorithms and flowcharts (Real Life Examples)

**UNIT II: Simple Arithmetic Problems Addition / Multiplication of integers**
- Determining if a number is +ve / -ve / even / odd
- Maximum of 2 numbers, 3 numbers, Sum of first n numbers
- Given n numbers, Integer division, Digit reversing
- Table generation for n, ab
- Factorial, sine series, cosine series, n Cr
- Pascal Triangle, Prime number
- Factors of a number, Other problems such as Perfect number
- GCD numbers etc (Write algorithms and draw flowchart), Swapping

**UNIT III: Introduction to ‘C’ Language**
- History, Structures of ‘C’ Programming
- Function as building blocks
- Language Fundamentals Character set,
UNIT IV: Operators Types of operators
- Precedence and Associatively,
- Expression, Statement and types of statements.
- Build in Operators and function Console based I/O and related built in I/O function: printf(), scanf(), getch(), getchar(), putchar() 
- Concept of header files, Preprocessor directives: include, define.

UNIT V: Control structures Decision making structures
- If, If-else, Nested If-else, Switch
- Loop Control structures: While, Do-while, for, Nested for loop
- other statements: break, continue, go to, exit

Suggested Books:

BCA-104 MATHEMATICS-1

Course Objective: To develop an understanding of Differential Equations concepts. To enable application of mathematical using limits and continuity.

Course Content:

UNIT I: Determinants and Matrices
- Definition, Minors, Co-factors
- Properties of Determinants
- Matrices: Definition, Types of Matrices, Addition, Subtraction
- Scalar Multiplication and Multiplication of Matrices
- Ad joint, Inverse, Crammers Rule
- Rank of Matrix, Eigen value, Caley-Hamilton Theorem (without proof)

UNIT II: Limits & Continuity
- Limit at a Point, Properties of Limit
- Computation of Limits of Various Types of Functions
- Continuity at a Point, Continuity over an Interval,
- Intermediate Value Theorem, Type of Discontinuities

UNIT III: Differentiation
- Derivative, Derivatives of Sum, Differences
- Product & quotients
- Chain Rule, Derivatives of Composite Functions
- Logarithmic Differentiation
- Rolle’s Theorem, Mean Value Theorem
- Expansion of Functions (Maclaurin’s & Taylor’s)
- Indeterminate Forms, L’ Hospitals Rule
- Maxima & Minima, Asymptote
- Successive Differentiation & Leibnitz Theorem.
UNIT IV: Integration
- Integral as Limit of Sum, Riemann Sum
- Fundamental Theorem of Calculus
- Indefinite Integrals, Methods of Integration Substitution
- By Parts, Partial Fractions
- Integration of Algebraic and transcendental Functions
- Reduction Formulae for Trigonometric Functions
- Gamma and Beta Functions.

Suggested Books:

BCA-105 BUSINESS COMMUNICATION

Course Objective: Understand the communication concepts. Practically apply various components of business communication

Course Content:

UNIT I: Introduction to Communication
- Meaning Process and Significance of Communication
- Nature of communication and it’s definition
- Need and importance of communication skills
- Basic types of communication-Reading Writing-Listening-Speaking
- Communication cycle.

UNIT II: Channels and Methods of Communication
- Forms of communication- Formal, Informal
- Direction of Communication, Downward Upward, Horizontal, Diagonal, Rumor, Grapevine.

UNIT III: Barriers of Communication
- Barriers of communication,
- Types of Barriers and ways in overcoming barriers

UNIT IV: 7 C’s
- Seven C’s of communication

UNIT V: Oral and written communication
- Written Communication.
- The process of formal written Communication (deciding purpose, analyzing audience, designing a message, organizing, selecting, arranging ideas and preparing outlines, developing message)
- Merits and limitations of oral and Written Communication

UNIT VI: Business Correspondence In Organization
- Business Letters, Structure and layout of a business letter
- Enquiry, letter of reply, letter of order, letter of execution
- letter of complaint, letter of collection Précis writing, Paragraph writing
- Reading comprehension
• Presentation skills.

UNIT VII: Non Verbal Communication
• Types of Nonverbal communication
• Kinesics, Proxemics, Chronemics, Paralanguage

UNIT VIII: Business language and Presentation
• Importance of Business language
• Vocabulary Words often confused
• Words often misspell, Common errors in English
• Oral Presentation Importance, Characteristics
• Presentation Plan, Power point presentation.

Suggested Books:

BCA-107 OFFICE AUTOMATION PRACTICAL

Practical will be done according to Office Automation paper.
BCA & B.SC IT COURSE CURRICULUM

Semester II

Subject Wise Assessment

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**BCA-111 C PROGRAMMING**

**Course Objective:** Learn how to solve common types of computing problems. Learn data types and control structures of C.

**Course Content:**

**UNIT I: Function and Array**
- Basic types of function
- Declaration and definition, Function call, Types of function
- Parameter passing, Call by value, Call by reference, Scope of variable
- Storage classes, Recursion.
- Definition, declaration and initialization of one dimensional array
- Accessing array elements; displaying array elements
- Sorting arrays, Arrays and function
- Two Dimensional array: Declaration and Initialization
- Accessing and Displaying
- Memory representation of array [Row Major, Column Major]
- Multidimensional array

**UNIT II: Array and Pointers**
- Definition and declaration,
- Initialization; Indirection operator, address of operator
- Pointer arithmetic, dynamic memory allocation; arrays and pointers
Function and pointers

UNIT III: Strings and Variables
- Definition, declaration and initialization of strings
- Standard library function: strlen(), strcpy(), strcat(), strcmp()
- Implementation without using standard library functions.
- Definition and declaration,
- Variables initialization; Accessing fields and structure operations
- Nested structures; Union: Definition and declaration
- Differentiate between Union and structure.

UNIT IV: Files
- Definition of Files
- Opening modes of files
- Standard function: fopen(), fclose(), feof(), fseek(), f 때문
- Using text files: fgetc(), fputc(), fscanf()

Suggested Books:

BCA-112 ORGANIZATION BEHAVIOR

Course Objective: A behavioral objective is a learning outcome stated in measurable terms, which gives direction to the learner's experience and becomes the basis for student evaluation.

Course Content:

UNIT I: Introduction to Organizational Behavior
- Nature, Scope, Definition and Goals of organizational Behavior
- Fundamental Concepts of Organizational Behavior
- Models of Organizational Behavior
- Emerging aspects of Organizational Behavior
- Meaning Cultural Diversity
- Managing the Perception Process.

UNIT II: Theories of Motivation
- Concept, Nature, Process, Importance
- Management Behavioral aspect of Perception
- Effects of employee attitudes
- Personal and Organizational Values
- Job Satisfaction
- Nature and Importance of Motivation
- Achievement Motive; Theories of Work Motivation
- Maslow’s Need Hierarchy Theory
- McGregor's Theory ‘X’ and Theory ‘Y.

UNIT III: Personality Traits/Therapies and Stress
• Definition of Personality, Determinants of Personality
• Theories of Personality- Trait and Type Theories
• The Big Five Traits, Mytes-Briggs Indicator
• Locus of Control
• Stype A and Type B Assessment of Personality
• Meaning and definition of Stress
• Symptoms of Stress
• Sources of Stress: Individual Level, Group Level
• Organizational Level; Stressors, Extra Organizational Stressors
• Effect of Stress - Burnouts; Stress Management - Individual Strategies, Organizational Strategies; Employee Counseling.

UNIT IV: Groups and Conflicts
• Nature of Group, Types of Groups; Nature and Characteristics of team
• Team Building, Effective Teamwork
• Nature of Leadership, Leadership Styles
• Traits of Effective Leaders
• Nature of Conflict, Process of Conflict; Levels of Conflict - Intrapersonal
• Interpersonal; Sources of Conflict
• Effect of Conflict; Conflict Resolution
• Meaning and types of Grievances & Process of Grievances Handling

Suggested Books:


BCA-113 DIGITAL ELECTRONICS & COMPUTER ORGANIZATION

Course Objective: The objective of this course is to introduce the organization of a computer and its principal components, viz, ALU, Control, Memory and Input/output.

Course Content:

UNIT I: Logic gates and circuit
• Gates (OR, AND, NOR, NAND, XOR & XNOR)
• De-Morgan’s laws; Boolean laws
• Circuit designing techniques (SOP, POS, K-Map).

UNIT II: Combinational Building Blocks
• Multiplexes; Decoder; Encoder
• Adder and Subtractor.

UNIT III: Memories
• ROMs, PROMs, EPROMs, RAMs, Hard Disk
• Floppy Disk and CD-ROM.
UNIT IV: Sequential Building Blocks
- Flip-Flop (RS, D, JK, Master-slave & T flip-flops)
- Registers & Shift registers
- Counters; Synchronous and Asynchronous Designing method.

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

Suggested Books:
1. Digital Logic and Computer design (PHI) 1998 : M.M. Manno

BCA-114 MATHEMATICS-II

Course Objective: Mathematics concepts and notations are useful in studying and describing objects and problems in computer algorithms and programming languages.

Course Content:

UNIT I: Sets
- Sets, Subsets, Equal Sets, Universal Sets
- Finite and Infinite Sets, Operation on Sets, Union
- Intersection and Complements of Sets, Cartesian Product
- Cardinality of Set, Simple Applications.

UNIT II: Relations and Trigonometric
- Properties of Relations
- Equivalence Relation, Partial Order
- Relation Function: Domain and Range
- Onto, into and One functions to One Functions
- Composite and Inverse Functions
- Introduction of Trigonometric
- Logarithmic and Exponential Functions

UNIT III: Geometry
- 3D Coordinate Geometry
- Coordinates in Space, Direction Cosines
- Angle Between Two Lines
- Projection of Join of Two Points on a Plane
- Equations of Plane, Straight Lines
- Conditions for a line to lie on a plane
• Conditions for Two Lines to be Coplanar
• Shortest Distance between Two Lines,
• Equations of Sphere
• Tangent plane at a point on the sphere.

UNIT IV: Statistics
• Measures of Central Tendency
• Preparing frequency distribution table
• Arithmetic mean, geometric mean, harmonic mean, median and mode
• Measure of dispersion: Range, mean
• Deviation, standard deviation, co-efficient of variation

Suggested Books:

BCA-115 E-COMMERCE

Course Objective: The course imparts the understanding of the concept and various application issues of e-commerce like Internet infrastructure, security over internet, payment systems and various online strategies for e-commerce.

Course Content:

UNIT I: Introduction to E-Commerce
• The Scope of Electronic Commerce
• Definition of Electronic Commerce
• Electronic E-commerce and the Trade Cycle
• Electronic Markets, Electronic Data Interchange
• Internet Commerce, E-Commerce in Perspective
• Business Strategy in an Electronic Age: Supply Chains
• Porter’s Value Chain Model, Inter Organizational Value Chains
• Competitive Strategy, Porter’s Model
• First Mover Advantage Sustainable Competitive Advantage
• Competitive Advantage using E-Commerce
• Business Strategy, Introduction to Business Strategy
• Strategic Implications of IT, Technology, Business Environment
• Business Capability, Exiting Business Strategy
• Strategy Formulation & Implementation Planning
• E-Commerce Implementation, E-Commerce Evaluation.

UNIT II: Business-to-Business Electronic Commerce
• Characteristics of B2B, EC, Models of B2B EC
• Procurement Management Using the Buyer’s Internal Marketplace
• Just in Time Delivery, Other B2B Models
• Auctions and Services from Traditional to Internet Based EDI
• Integration with Back-end Information System
• The Role of Software Agents for B2B EC
• Electronic marketing in B2B, Solutions of B2B EC
• Managerial Issues, Electronic Data Interchange (EDI), EDI
• The Nuts and Bolts, EDI & Business.

UNIT III: Internet and Extranet
• Automotive Network Exchange
• The Largest Extranet, Architecture of the Internet
• Intranet and Extranet, Intranet software
• Applications of Intranets, Intranet Application Case Studies
• Considerations in Intranet Deployment
• The Extranets: The structures of Extranets, Extranet products & services, Applications of Extranets, Business Models of Extranet Applications
• Managerial Issues. Electronic Payment Systems
• Is SET a failure, Electronic Payments & Protocols
• Security Schemes in Electronic payment Systems
• Electronic Credit card system on the Internet
• Electronic Fund transfer and Debit cards on the Internet
• Stored - value Cards and E- Cash, Electronic Check Systems
• Prospect of Electronic Payment Systems, Managerial Issues.

UNIT IV: Infrastructure for EC
• It takes more than Technology
• A Network Of Networks, Internet Protocols
• Web- Based client/ Server, Internet Security, selling on the web
• Chatting on the Web, Multimedia delivery
• Analyzing Web Visits, Managerial Issues.

Suggested Books:

BCA-116 C PROGRAMMING PRACTICAL

Practical will be done according to C PROGRAMMING paper.