DR. BHIM RAO AMBEDKAR UNIVERSITY, AGRA

BACHELOR OF COMPUTER APPLICATION (B.C.A.)
DETAILED SYLLABUS FIRST SEMSTER

Computer Fundamental & MS-Office (BCA–101)

Unit-I: Introduction to Computers: Introduction, Characteristics of Computers, Block diagram of computer. Types of computers and features, Mini Computers, Micro Computers, Mainframe Computers, Super Computers. 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, 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, Define symbols of flowchart, Advantages and disadvantages, 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. **Spreadsheetsand Database packages:** Purpose, usage, command, MS-Excel, Creation of files in MS-Access, Switching between application, MS- PowerPoint.

Introduction to Programming Using C (BCA – 102)

Unit-I: C basics: C character set, Identifiers and keywords, Datatypes, constants,, variables and arrays, declarations, expressions statements, symbolic constants, compound statements, arithmetic operators, unary operators, relational and logical operators, assignment operators, conditional operators, bit operators.

Unit-II: Decision Control Structures: If statement, If-else statement, Nested if (), If () ladder, Switch, case statement, Iterative statements: for loop, while loop, Do-while () loop, Conditional statements: Break, Continue, Storage Classes, Array: Declaration of an Array, Initialization of Array, Types of Array: Single Dimension Array, Two, Dimensional Array, Address Calculation of an Element of a 2-D Array.

Unit-III: Functions: Library Functions, User Defined Functions, Function Declaration, Prototype Declaration, Types of Arguments: Actual Arguments, Formal Arguments, Function Definition. Passing Arrays as Parameters, Methods to Call a Function: Call by Value, Callby Reference.

Unit-IV: Pointers: Declaration of Pointer Variables, Pointer Arithmetic, Returning Multiple Output Values through a Function Strings.

Unit-V: Structures, Unions, Array of Structures, Enumerations, File Handling: Opening a file, Closing a file, File Opening Modes, Reading from and writing to a file, Copying Content of an existing fileto another, Command line arguments, argc and argv Parameters, Pre- processor directives.

Business Communication and Soft Skills (BCA – 103)

Unit-I: Means of Communication - Meaning and Definition – Process – Functions – Objectives – Importance – Essentials of good communication – Communication barriers, 7C's of Communication, Types of Communication: Meaning, Nature & Scope.

Unit-II: Oral Communication: Principle of effective oral communication – Techniques of effective speech – Media of oral communication (Face-to-face conversation – Teleconferences – PressConference – Demonstration – Radio Recording – Dictaphone – Meetings – Rumour – Demonstration and Dramatisation – Public address system – Grapevine – Group Discussion – Oral report – Closedcircuit TV). The art of listening – Principles of good listening. **WrittenCommunication** - Purpose of writing, Clarity in Writing, Pricinciple of Effective writing, Writing Techniques, Electronic Writing Process. **Business Letters & Reports** - Need and functions of business letters Planning & layout of business letter – Kinds of business letters – Essentials of effective correspondence, Purpose, Kind and Objective of Reports, Writing Reports.

Unit-III: Drafting of business letters - Enquiries and replies – Placing and fulfilling orders – Complaints and follow-up Sales letters Circular letters Application for employment and resume. **InformationTechnology for Communication** - Word Processor – Telex – Facsimile(Fax) – E-mail – Voice mail –Internet – Multimedia – Teleconferencing – Mobile Phone Conversation – Video Conferencing–SMS – Telephone Answering Machine – Advantages and limitationsof these types. **Self Analysis:** SWOT Analysis, Who am I, Attributes,importance of self confidence, self esteem, creativity: out of box thinking, Lateral thinking.

Unit-IV: Attitude: Factors influencing attitude, challenges and lessons from attitude, Etiquette, Motivation: Factors of motivation, Selftalk, Intrinsic & Extrinsic Motivators. Goal Setting: Wish List, SMARTGoals, Blue print for success, Short Term, Long Term, Life Time Goals. **Interpersonal Skills:** Gratitude: Understanding the relationship between leadership networking & team work. Assessing Interpersonal skills situation description of interpersonal skills, Team work: Necessity of team work personally, socially and educationally.

Unit-V: Leadership: Skills for a good leader, Assessment of leadership skills, Stress Management: Causes of stress and its impact,how to manage & distress, Circle of control, Stress Busters, Emotional Intelligence: What is Emotional Intelligence, emotional quotient why emotional intelligence matters, Emotion Scales, Managing Emotions. **Conflict Resolution:** Conflict in human relations – Reasons case studies, Approaches to conflict resolution. Decision Making: Importance and necessity of Decision Making, Process and practical way of Decision Making, Weighing Positives and Negatives.

Introduction to HTML, CSS - XML (BCA – 104)

Unit-I: Basics of Internet and Web: The basics of Internet, WorldWide Web, Web page Home page, Web site, Static, Dynamic and Activeweb page, Overview of Protocols, Simple Mail Transfer Protocol, Gopher, Telnet, Emails, TFTP, Simple Network Management Protocol, Hyper Text Transfer Protocol, Client server computing concepts. WebClient and Web Server, Web Browser, Browser e.g., Netscape navigator, Internet Explorer, Mozilla Firefox, Client, Side Scripting Languages, VB Script and Java Script, Active X control and Plug-ins, Web serverArchitecture, Image maps, CGI, API web database connectivity, DBC, ODBC.

Unit-II: Dynamic HTML, Document Object Model, Features, DHTML, CSSP (Cascading Style Sheet Positioning) and JSSS (Java Script assisted Style Sheet), Layers of Netscape, The ID Attribute, DHTML Events.

Unit-III: Introduction to HTML: Editors, Basics, Elements, Attribute, Headings, Paragraphs, Styles, Formatting, Quotations,Comments, CSS, Links, Images, Tables, Lists, Blocks, Classes, ID, frames, File Paths, Head, Layout, Computer Code, Entities, Symbols,Char set, Color and Background of Web Pages, Hypertext, Hyperlink and Hypermedia, Links, Anchors and URLs, Links to External Documents, Different Section of a page and graphics, Footnote and E-mailing, Creating Table, Frame, Form and Style Sheet.

Unit-IV: CSS: Introduction, Syntax, Colors, Backgrounds, Borders, Margins, Padding, Height/Width, Box Model, Outline, Text,Fonts, Icons, Links, Lists, Tables, Display, max, Width, Position, Overflow, Float, Inline, Block, Align, Combinators, Pseudo, Class, Pseudo Elements, Opacity, Navigation Bar, Dropdowns, Image Gallery, Image Sprites, Attr Selectors, Forms, Counters, Website Layout, Units, Specificity.

Unit-V: XML: Introduction, Tree, Syntax, Elements, Attributes, Namespaces, Display, HTTP request, Parser, DOM, XPath, XSLT, XQuerry, XLink, Validator, DTD, Schema, Server.

Mathematics-I (BCA – 105)

Unit-I: Determinants: Definition, Minors, Cofactors, Properties of Determinants MATRICES: Definition, Types of Matrices, Addition,Subtraction, Scalar Multiplication and Multiplication of Matrices, Adjoint, Inverse, Cramers Rule, Rank of Matrix Dependence of Vectors,Eigen Vectors of a Matrix, 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 aPoint, 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,Curve Tracing, Successive Differentiation & Liebnitz Theorem.

Unit-IV: Integration: Integral as Limit of Sum, Fundamental Theorem of Calculus(without proof.), Indefinite Integrals, Methods of Integration Substitution, By Parts, Partial Fractions, Reduction Formulae for Trigonometric Functions, Gamma and Beta Functions(definition).

Unit-V: Vector Algebra: Definition of a vector in 2 and 3 Dimensions;Double and Triple Scalar and Vector Product and physical interpretationof area and volume