Annexure -I

BCAD 301
COMPUTER SYSTEM ARCHITECTURE

Units	Topics
1.	Logic gates, Boolean functions.
2.	Dual of a Boolean function, Inverse of a Boolean function.
3.	Boolean function representation: canonical form, standard form.
4.	Boolean function simplification: Algebraic method, Karanaugh Map method.
5.	Boolean function implementation: NAND implementation, NOR implementation. Combinational circuits: NNND implementation. NOR implementation.
6.	Combinational circuits: adder, subtractor, decoder and encoder, MUX/DEMUX, etc. Sequential circuits: flip-flops, registers and Counters.

BCAD 302
OBJECT ORIENTED PROGRAMMING IN C++

Units	Topics
1.	OOP: Programming methodologies: concepts of structured and object oriented programming: Advantage of OOP methodologies, characteristics of OOP languages: objects, classes, Data Abstraction, Encapsulation, inheritance, reusability, polymorphism and operator overloading, function overloading;
2.	Programming in C++: Data types, constants, experiences and statements, Arrays Strings, function overloading, functions, friend functions, in line functions constructors and destructors, derived classes, friend classes, operator overloading, support for data abstraction, derived class, base class, pointers and arrays, pointers and functions, support for OOP.

BCAD 303
SYSTEM ANALYSIS AND DESIGN

Units	Topics
1.	System: Definition and concept;
2.	Real-time and distributed systems; Data information and related attributes;
3.	System analysis and analyst;
4.	Systems development life cycle: study, analysis, design, development and implementation;
5.	System planning; data and fact-finding techniques;
6.	System design and modeling; logical and physical design representation: DFD, ERD, structure charts; Forms design: classification, user interface; standards; control and validation checks;
7.	User interface guidelines; modular and structured design; systems implementation and maintenance; Project management techniques;
8.	Use of available tools to implement a case study.

BCAD 304
DATABASE APPLICATION IN MS ACCESS

Units	Topics

1. Concept of database and its evaluation,
2. Data abstraction and data integration;
3. The three level architecture of a DBMS; components of a DBMS;
4. Data models and their implementations; relational, network and hierarchical models;
5. Relational data manipulations; relational algebra; relational calculus;
6. SQL; relational database design; functional dependencies and normal forms;
7. Implementing database application with MS-Access.

Semester 4

BCAD 401
Numerical And Statistical Analysis

Units	Topics

Numerical methods

1. Numerical methods versus numerical analysis, Errors and Measure of Errors.
2. Numerical solution of equations, Iterative methods, multiple roots and other anomalies. Bisection method, Regula-falsi method, Neston-Raphson method.
3. Solutions of simultaneous linear equations, Gauss elimination method, Gauss-Jordan method, Gauss-Siedel method.
4. Interpolation: Lagrange polynomials, Newton's difference methods.
5. Numerical differentiation and integration: Using interpolating polynomials, trapezoidal rule, Simpson's rules.

Statistical techniques

1. Data collection and compilation
2. Data representation
3. Measure of central tendency: arithmetic, geometric and harmonic means, median and mode
4. Measure of dispersion: Range, mean deviation, coefficient of variance and standard deviation
5. Moment, skew ness and kurtosis
6. Correlation
7. Regression
8. Curve fitting by method of least square

BCAD 402
DATA STRUCTURES IN C

Units	Topics

1. Representation of data,
2. Data Types, ADT and Data Structures,
3. Arrays: single and multidimensional arrays,
4. Structures, Static and Dynamic implementations of data structures,
5. Stacks and it's applications, infix, prefix and postfix notations and conversions,
6. Recursion, queues other general lists and applications;

7. Linked lists: dynamic memory allocation & pointers, linked stacks & queues.
8. Trees: Binary Trees, Tree search, tree traversals, threaded binary tree, Height Balancing-AVI trees; graphs-BFS and DFS; B-trees, b+ trees, searching and sorting techniques and their analysis of algorithms, searching: linear search, binary search, tree search.
9. Sorting: bubble sort, quick sort, insertion sort, heap sort, shell sort, merge sort and radix sort.

BCAD 403
COMPUTER NETWORKS

Units	Topics

1. Data Communication System: Purpose, Components:
2. Source, transmitter, transmission System, receiver, and destination. Data transmission: Frequency, Spectrum and Bandwidth.
3. Time-domain and frequency dominion Concepts.
4. Relationship between data-rate and Bandwidth.
5. Analog and digital data transmission. Data and signal. Analog and digital Signaling of analog and digital data.
6. Modem, Modulation techniques, CODEC, Digital Transmitter etc.
7. Transmission impairments: Attenuation and attenuation distortion, delay distortion, noise. Introduction to Network, OSI reference model, TCP/IP reference model.
8. Transmission Media: Magnetic Media, Twisted-Pair cables,
9. Baseband & Broadband Coaxial cables, Fiber Optics.

BCAD 404
WEB TECHNOLOGIES

Units	Topics

1. Introduction of Internet, understanding the Internet,
2. A tower of the Internet Hardware requirement to connect to the Internet,
3. S/W requirement and Internet service products
4. Internet Addressing Mail using mail from shell account understanding the web, using the web,
5. Introduction to usenet file types used on the Internet Mailing list
6. Telnet Talk facts: using talk from a shell a/c IRC Basisc of TCP/IP.
7. Introduction to Internet Programming with JAVA/Perl: crating applets, applicatons, and security.
8. Introduction to E-Business,
9. Electronic Fund Transfer (EFT), Value-chain, internet Business strategy,
10. Functional Architecture, implementation Strategies;
11. Building Blocks of e-commerce,
12. System design, creating and managing content etc;
13. Cryptography and security management;
14. Payment systems; Auxiliary system; transaction Processing;
15. Building-commerce system,
16. System architecture, secure links etc; Present and future Trend;