**BCA-III (6th Sem)**

**BCA-361: Web Designing Using Advanced Tools**

**Lesson Plan(2021-22)**

**Month of April**

JavaScript: Introduction, Features, Data types, Operators, Statements, Functions,

Event Handling, Use of Predefined Object and Methods, Frames, Windows, Tables, Images, Links. VBScript: Introduction, Features, Variables, Data Types, Numeric and Literal Constants, Arrays, Operators, Subroutine Procedures, Function Procedures, Control Statements, Strings, Message and Input Boxes, Date and Time, Event Handlers, Embedding VBScript in HTML

**Month of May**

Active Script Pages – Introduction, Features, Client-Server Model, Data Types,

Decision Making Statements, Control statements, Use of Various Objects of ASP, Various Techniques of Connecting to Database. Other Interactivity Tools - Macromedia Flash, Macromedia Dreamweaver, PHP: Basic Introduction

and Features

**Month of June**

DHTML: Introduction, Features, Events, Dynamic Positioning, Layer Object, Properties of STYLE, Dynamic Styles, Inline Styles, Event Handlers; Cascading Style Sheets (CSS): Basic Concepts, Properties, Creating Style Sheets; Common Tasks with CSS: Text, Fonts, Margins, Links, Tables, Adding Links; Adding Tables; Adding Forms; Adding Image and Sound; Use of CSS in HTML Documents Linking and Embedding of CSS in HTML Document

**Month of July**

Microsoft FrontPage: Introduction, Features, Title Bar, Menu bar, FrontPage Tool Bar, Style, FontFace and Formatting Bar, Scroll Bars XML: Introduction, Features, XML Support and Usage, Structure of XML Documents, Structures in XML, Creating Document Type Declarations, Flow Objects, Working with Text and Font, Color and Background Properties

**B.Sc.-III (6th Sem)**

**Paper II: Computer Networks**

**Lesson Plan(2021-22)**

**Month of April**

Introduction to Data Communication and Computer Networks; Uses of Computer Networks; Types of Computer Networks and their Topologies; Network Hardware Components: Connectors, Transceivers, Repeaters, Hubs, Network Interface Cards and PC Cards, Bridges, Switches, Routers, Gateways; Network Software: Network Design issues and Protocols; Connection-Oriented and Connectionless Services; OSI Reference Model; TCP/IP Model;

**Month of May**

Analog and Digital Communications Concepts: Analog and Digital data and signals; Bandwidth and Data Rate, Capacity, Baud Rate; Guided and Wireless Transmission Media; Communication Satellites; Switching and Multiplexing; Modems and modulation techniques;

**Month of June**

Data Link Layer Design issues; Error Detection and Correction methods; Sliding Window Protocols: One-bit, Go Back N and Selective Repeat; Media Access Control: ALOHA, Slotted ALOHA, CSMA, Collision free protocols; Introduction to LAN technologies: Ethernet, Switched Ethernet, Fast Ethernet, Gigabit Ethernet; Token Ring; Introduction to Wireless LANs and Bluetooth;

**Month of July**

Routing Algorithms: Flooding, Shortest Path Routing, Distance Vector Routing; Link State Routing, Hierarchical Routing; Congestion Control; Traffic shaping; Choke packets; Load shedding; Application Layer: Introduction to DNS, E-Mail and WWW services; Network Security Issues: Security attacks; Encryption methods; Firewalls; Digital Signatures;

**BCA-I (2nd Sem)**

**BCA – 125: Structured System Analysis and Design**

**Lesson Plan(2021-22)**

**Month of April**

System Concept: Definition, Characteristics, Elements of system, Physical and abstract system, open and closed system, man-made information systems. System Development Life Cycle: Various phases of system development, Considerations for system planning and control for system success. Role of system analyst.

**Month of May**

System Planning: Bases for planning in system analysis: Dimensions of Planning.

Initial Investigation: Determining user’s requirements and analysis, fact finding process and techniques. Tools of structured Analysis: Data Flow diagram, data dictionary, IPO and HIPO charts, Gantt charts, pseudo codes, Flow charts, decision tree, decision tables. Feasibility study: Technical, Operational & Economic Feasibilities.

**Month of June**

Cost/Benefit Analysis: Data analysis cost and benefit analysis of a system.

Input/ Output and Form Design, File Organization and database design: Introduction to files and database, File structures and organization, objectives of database design, logical and physical view of data.

**Month of July**

System testing: Introduction, objectives of testing, test planning, testing techniques. Quality assurance: Goal of quality assurance, levels of quality assurance System implementation and software maintenance: primary activities in maintenance, reducing maintenance costs.

**BCA-I (2nd Sem)**

**BCA – 121: Advanced Programming in C**

**Lesson Plan(2021-22)**

**Month of April**

Strings in ‘C’: Introduction, Declaration and initialization of string, String I/O, Array of strings, String manipulation functions: String length, copy, compare, concatenate, search for a substring. Structure and Union: Introduction, Features of structures, Declaration and initialization of structures, Structure within structure, Array of structures, Structure and functions. Union: Introduction, Union of structures. Typedef, Enumerations

**Month of May**

Pointers: Introduction, Pointer variables, Pointer operators, Pointer assignment, Pointer conversions, Pointer arithmetic, Pointer comparison, Pointers and arrays, Pointers and functions, Pointers and strings, Pointer to pointer, dynamic allocation using pointers.

**Month of June**

Files: Introduction, File types, File operations, File I/O, Structure Read and write in a file, Errors in file handling, Random-access I/O in files.

**Month of July**

Preprocessor: Introduction, #define, macros, macro versus functions, #include, Conditional compilation directives, undefining a macro. Command line arguments: defining and using command line arguments.

**PGDCA**

**CS-DE-12: Problem Solving Through ‘C’**

**Lesson Plan(2021-22)**

**Month of April**

Strings: String handling, reading and writing strings, string functions, dynamic strings. Pointers: Declaration, operations on pointers, pointers and arrays, dynamic memory allocation, pointers and functions, pointers and strings. Structure & Union: Definition, processing, Structure and pointers, passing structures to functions, Union

**Month of May**

Programming Fundamentals: Introduction to Compiler, Assembler and Interpreter, Concept of problem solving, Problem definition, Program design, Debugging, Types of errors in programming, Documentation. Flowcharting, decision tables, algorithms, Structured programming concepts, Programming methodologies - top-down and bottom-up programming.

**Month of June**

Overview of C: History of C, Importance of C, Structure of a C Program.

Elements of C: C character set, identifiers and keywords, Data types, Constants and Variables. Operators: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators and their hierarchy & associativity.

Input/output: Unformatted & formatted I/O function in C.

**Month of July**

Control statements: Sequencing, Selection: if and switch statement; Repetition: for, while, and do-while loop; break, continue, goto. Functions: Definition, prototype, passing parameters, function calls, library functions, recursion. Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime. Arrays: Definition, types, initialization, processing an array, passing arrays to functions, dynamic arrays

**PGDCA**

**CS-DE-15: Operating System**

**Lesson Plan(2021-22)**

**Month of April**

File Systems: File concept, File access and allocation methods, Directory Systems: Structured Organizations. Hardware Management: Disk scheduling policies. Protection: Goals of protection, principles of protection, domain of protection, access matrix & its implementation, revocation of access rights.

**Month of May**

Windows: Features of Windows; Various versions of Windows & its use; My Computer & Recycle bin; Desktop, Icons and Windows Explorer; Dialog Boxes & Toolbars; Working with Files & Folders; simple operations like copy, delete, moving of files and folders from one drive to another, Accessories and Windows Settings using Control Panel.

Linux: Linux architecture, Features of Linux, Simple Commands in Linux

**Month of June**

Introductory Concepts: Operating system functions and characteristics, historical evolution of operating systems, Real time systems, Distributed systems, O/S services, system calls, system programs.

CPU Scheduling: Process concept, Process scheduling, scheduling criteria, Scheduling algorithms.

**Month of July**

Deadlocks: Deadlock characterization, Deadlock prevention and avoidance, Deadlock detection and recovery.

Storage Management: Storage allocation methods: Single contiguous allocation, Multiple contiguous allocation, Paging; Segmentation, Virtual memory concepts, Demand Paging, Page replacement Algorithms, Thrashing.