MONTESSORI MAHILA KALASALA (AUTONOMOUS)

NAAC ACCREDITED COLLOGE AT 'B'LEVEL(****)

COURSE	SUBJECT	HRS.	CREDITS	IA	ES	TOTAL
COURSE-VI	OPERATING SYSTEM	6	4	25	75	100
COURSE-IV	WEB PRAGRAMMING	6	4	25	75	100
COURSE-IV	DATA MINING DATA WARE HOUSE	6	4	25	75	100
COURSE-VI	ADVANCE JAVA SCRIPT	6	4	25	75	100
COURSE-II	DATA STRUCTURES	6	4	25	75	100
COURSE-II	DBMS	6	4	25	75	100
COURSE-IV	CYBER LAWS	6	4	25	75	100
COURSE-VI	PHP&MYSQL	6	4	25	75	100
COURSE-VI	CLOUDE COMPUTING	6	4	25	75	100
COURSEII	OOAD	6	4	25	75	100
COURSE-IV	DOA	6	4	25	75	100
COURSE-IV	DAR	6	4	25	75	100
COURSE-VI	PYTHON	6	4	25	75	100
COURSE-VI	SOFTWAER TESTING	6	4	25	75	100
COURSE-IV	SOFTWARA ENGINEERING	6	4	25	75	100

BCA Semester II

DATA BASE MANAGEMENT SYSTEM
Syllabus

UNIT-I

Overview of Database Systems: Managing Data, File System versus DBMS, Advantages of DBMS, Describing and storing Data in a DBMS, Queries in DBMS, Transaction Management, Structure of DBMS, People who work with DBMS Introduction to Database design : ER diagrams, Beyond ER Design, Entities, Attributes and Entity sets, Relationships and Relationship sets, Additional features of ER Model, Conceptual Design with the ER Model.

UNIT-II

Relational Model: Introduction to the Relational Model - Integrity Constraints over Relations, Enforcing Integrity constraints, Querying relational data, Logical data base Design, Introduction to Views destroying/ altering Tables and Views. Semester Course Code Course Title Hours/Week Hours Credits II C6 DATA BASE MANAGEMENT SYSTEM 4 60 4 Relational Algebra and Calculus: Relational Algebra - Selection and Projection, Set operations, Renaming, Joins, Division, Examples of Algebra Queries, Relational calculus - Tuple relational Calculus - Domain relational calculus - Expressive Power of Algebra and calculus.

UNIT-III

Working with MySQL - Introduction: What is MySQL?, Database Terms, Install MySQL on windows, Install MySQL on Ubuntu, Access MySQL, Start the Command Line Interface. MySQL Command Syntax: SQL Commands Syntax, Data Types Create a Database, Create a User, Create a Table. Important SQL Commands : Insert New Records, Modify a Table, Query a Database, Advanced Select Statements, Remove a Row, Limit Clause, Update the contents of a Field, Sort Results,LogicalOperators Advanced Usage : Primary Keys, MySQL Functions, MySQL string functions, MySQL date functions, MySQL aggregate functions Basics of Functional Dependencies and Normalization for Relational Databases: Informal Design Guidelines for Relational Schemas, Functional Dependencies, Normal Forms Based on Primary Keys, General Definitions of Second and Third Normal Forms, Boyce-Codd Normal Form, Multivalued Dependency and Fourth Normal Form, Join Dependencies and Fifth Normal Form

UNIT IV

Introduction to Transaction Processing Concepts and Theory: Introduction to Transaction Processing – Transaction and System Concepts – Desirable Properties of Transactions – Characterizing schedules based on Serializability – Characterizing schedules based on Recoverability Concurrency Control Techniques: Two Phase Locking Techniques for Concurrency Control – Concurrency Control Based on Timestamp ordering – Multiversion Concurrency Control Techniques

UNIT-V

Disk Storage, Basic File Structures and Hashing: Introduction, Secondary Storage Devices, Buffering of Blocks, Placing file Records on Disk, Operations on Files, Files of Unordered Records, Files of Ordered Records, Hashing Techniques, Other Primary File Organizations, Parallelizing Disk Access using RAID Technology. Indexing Structures

for Files: Types of Single-Level Ordered Indexes, Multilevel Indexes, Dynamic Multilevel Indexes Using B-Trees and B+ Trees, Indexes on Multiple Keys, Other Types of Indexes.

BCA Semester IV
Cyber laws

Syllabus

Unit I

Introduction: Computers and its Impact in Society, Overview of Computer and Web Technology, Need for Cyber Law, Cyber JurisprudenceatInternational andIndian Level.

Unit II

Cyber Law- International Perspectives: UN &International Telecommunication Union (ITU)Initiatives, Council of Europe -Budapest Convention on Cybercrime, Asia-Pacific Economic Cooperation(APEC), Organization for Economic Co-operation and Development(OECD), World Bank, Commonwealth of Nations.

Unit III

Constitutional& Human Rights Issues in Cyberspace: Freedom of Speech and Expression in Cyberspace, Right to Access Cyberspace – Access to Internet, Right to Privacy, Right to Data Protection. Semester Course Code Course Title Hours/Week Hours Credits IV C10 Cyber Laws 4 60 4

Unit IV

Cyber Crimes& Legal Framework: Cyber Crimes against Individuals, Institution and State, Hacking, Digital Forgery, Cyber Stalking/Harassment, Cyber Pornography, Identity Theft &Fraud, Cyber terrorism, Cyber Defamation, Different offences under IT Act, 2000.

Unit V

Cyber Torts: Cyber Defamation, Different Types of Civil Wrong sunder the IT Act, 2000, Intellectual Property Issues in Cyber Space, Interface with Copyright Law, Interface with Patent Law, Trade marks &Domain Names Related issues

BCA Semester IV

Advance software engineering

Unit –I

The Scope of Object Oriented Software Engineering: Historical Aspects, Economic Aspects, Maintenance Aspects, Requirements, analysis and design aspects, the object oriented Paradigm, Terminology, Ethical Issues. Software Life Cycle Models: Software Development t In Theory, Risks and other aspects of Iteration and Incrementation, Managing Iteration and Incrementation, other Life Cycle Models: Code and Fix, Waterfall, Rapid Prototyping, Open Source, Agile Processes, Synchronize and Stabilize, Spiral Models, Comparison of Life Cycle Models.

Unit-II

The Software Process : The Unified Process, Iteration and Incrementation, The Requirements Workflow, The Analysis workflow, The Design Workflow ,The Implementation workflow, the test workflow, Post Delivery Maintenance, Retirement, the phases of the unified process, one-versus two-dimensional life Semester Course Code Course Title Hours/Week Hours Credits IV C15 Object Oriented Software Engineering 4 60 4 cycle models, improving the software process, capability maturity models, costs and benefits of software process improvement. Teams : Team Organization, Democratic Team Approach, Chief Programmer Team Approach, Synchronize and Stabilize Teams, Teams for Agile processes, open source programming teams, people capability maturity model choosingan appropriateteam.

Unit-III

Models to Objects: what is a module? Cohesion, Coupling, Data Encapsulation, Abstract Data Types, Information Hiding, Objects, Inheritance, Polymorphism and Dynamic Binding, The Object-Oriented Paradigm. Reusability and Portability: Objects and Reuse, Reuse during design and implementation reuse and post delivery maintenance, portability, techniques for achieving portability. Planning and Estimating: planning and the software process, Estimating duration and cost, components of a software project management plan, software project management plan framework, planning testing, training requirements, documentations standards.

Unit-IV

The Requirements workflow: Determining what client needs , overview of the requirements, understanding the domain, the business model, initial requirements, what are object-oriented requirements, rapid prototyping , human factors, reusing the rapid prototype, metrics for the requirement workflow, challenges of the requirements workflow. The Analysis Workflow: The specification document, informal specifications, the analysis workflow, extracting the entity classes ,challenges of the analysis workflow. The Design Workflow: Object –Oriented Design, the design workflow, formal techniques for detailed design, real time design techniques, CASE tools for design, metrics for design, challenges of the design workflow.

Unit-V

The implementation workflow: choice of programming languages, good programming practice, coding standards, code reuse, integration, the implementation workflow. Testing: Quality Issues, Non – Execution based testing, execution based testing, what should be tested?, testing versus correctness proofs, who should perform execution based testing?, when testing stops. Test case selection, Black Box Unit Testing techniques, Glass-Box Unit Testing Techniques, code walkthrough and inspections, comparison of unit testing techniques, clean room, testing issues integration testing, product testing, and acceptance testing metrics for the implementation workflow challenge of the implementation workflow. Post delivery Maintenance: Why post delivery maintenance is necessary, what is required of post delivery maintenance programmers? Management of post delivery maintenance, maintenance issues, reverse engineering testing during post delivery maintenance metrics for post delivery maintenance, challenges for the post delivery maintenance.

BCA Semester VI

SOFTWARE TESTING

UNIT –I

Basic aspects of software testing ; Testing in the software Life cycle , Product paradigms, Metrics and measurements

Unit-II

Testing processes: Processes in General, Test Planning and Control, Test Analysis and Design, Test Implementation and Execution, Evaluating Exit Criteria and Reporting , Test Closure

Unit-III

Test Management: Business value of testing , Test Management Documentation , Test Estimation , Test Progress Monitoring and control, Testing and Risk

Unit-IV

Test techniques: Specification-based techniques, Structure-based techniques, defect-based techniques, Experience-based techniques, Static analysis, Dynamic analysis, choosing testing techniques

Unit-V

Testing of software characteristics: Quality attributes for test analysts ,Quality attributes for Technical test analysts

References

Guide to advance software testing by Anne Mette Jonassen Hass

BSc (MPCs,BMC,NBC) Semeter IV

OPERATING SYSTEM

UNIT- I

What is Operating System? History and Evolution of OS, Basic OS functions, Resource Abstraction, Types of Operating Systems– Multiprogramming Systems, Batch Systems, Time Sharing Systems; Operating Systems for Personal Computers, Workstations and Hand-held Devices, Process Control & Real time Systems.

UNIT- II

Processor and User Modes, Kernels, System Calls and System Programs, System View of the Process and Resources, ProcessAbstraction, ProcessHierarchy, Threads, Threading Issues, Thread Libraries; Process Scheduling, Non-Preemptive and Preemptive Scheduling Algorithms**.**

UNIT III

Process Management:Deadlock, Deadlock Characterization, Necessary andSufficient Conditions forDeadlock, Deadlock Handling Approaches: Deadlock Prevention, Deadlock Avoidance and Deadlock Detection and Recovery. Concurrent and Dependent Processes, Critical Section, Semaphores, Methods for Interprocess Communication; Process Synchronization, Classical Process Synchronization Problems: Producer-Consumer, Reader-Writer.

UNIT IV

Memory Management:Physical and Virtual Address Space; MemoryAllocation Strategies– Fixed and - Variable Partitions, Paging, Segmentation, Virtual Memory.

UNIT V

File and I/O Management, OSsecurity : DirectoryStructure, File Operations, File Allocation Methods, Device Management, Pipes, Buffer, Shared Memory, Security Policy Mechanism, Protection, Authentication and Internal Access Authorization Introduction to Android Operating System, Android Development Framework, Android Application Architecture, Android Process Management and File System, Small Application Development using Android Development Framework.

BSc(MPCs,MSCs) Semester VI

Php,MySQL&word press

Unit – I

Installating and Configuring MySQL : Current and future versions of MySQL , the basics of php , The building Blocks Of php : variables , data types , operators and expression , constants , Flow Control in php : switching flow , loops, code Blocks and Browser output.

Unit – II

What is function ? , calling functions , defining functions , returing the values from User Defined functions , variable Scope , saving state between function calls with the static statement , more about arguments. Working with arrays: what is arrays?, creating array, some array related functions. Working with objects: creating objects , object instance working with strings , date and time: Formatting strings with php , investigating strings with php, manipulating strings with php , using date and time functions in php.

Unit-III

Working with forms : creating forms , accessing form input with user defined arrays , combining HTML and php code on a single page , using hidden fields to save state , redirecting the user, sending mail on form submission , working with file uploads , working with files and directories : including files with inclue(), validating files, creating and deleting files, opening a file for writing , reading or appending , reading from files, writing or appending to a file, working with directories.

Unit-IV

Introduction to MySQL and interfacing with database through php understanding the database design process: the importance of good database design , types of table relationships, understanding Normalization, queries , selecting from multiple tables , using the update command to modify records , using relace command , using the delete command , frequently used string functions in MySQL , using date and time functions in MySQL. Creating an online address book: planning and creating database tables, creating menu, creating record addition mechanism , viewing record , creating the record deletion mechanism, adding subentities to a record.

Unit –V

Introduction to word press , servers like wamp , bitnami ect installing and configuring word press , understanding admin panel , working with posts and pages , using editor , text formatting with shortcuts working with media adding , editing ,deleting media elements , working with widgets , menus . working with themes – parent and child themes , using featured images , configuring settings , user and user

roles and profiles , adding external links word press with plug ins, customizing the site changing the appearance of site using css

BSc SemesterII

DATA STUCTURES USING C

UNIT – I: Introduction to Data Structures: Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages Principles of Programming and Analysis of Algorithms: Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O' Notation, Algorithm Analysis, Structured Approach to Programming, Recursion, Tips and Techniques for Writing Programs in 'C'

UNIT – II: Arrays: Introduction to Linear and Non- Linear Data Structures, One- Dimensional Arrays, Array Operations, Two- Dimensional arrays, Multidimensional Arrays, Pointers and Arrays, an Overview of Pointers Linked Lists: Introduction to Lists and Linked Lists, Dynamic Memory Allocation, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays

UNIT – III: Stacks: Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks, Stacks and Recursion Queues: Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- Deques, Priority Queues, Application of Queues

UNIT – IV: Binary Trees: Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of Binary Trees, Applications of Binary Tree

UNIT – V: Searching and sorting: Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, Searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search Graphs: Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

BCA SemesterIV

Data mining and Dataware house

Unit I Introduction: What Motivated Data Mining? Why Is It Important?, So, What Is Data Mining? , Data Mining—On What Kind of Data?: Relational Databases, Data Warehouses, Transactional Databases. Data Mining Functionalities—What Kinds of Patterns Can Be Mined? , Data Preprocessing: Why Preprocess the Data?, Descriptive Data Summarization: Measuring the Semester Course Code Course Title Hours/Week Hours Credits IV C11 DATA MINING and WARE HOUSING 4 60 4 Central Tendency, Measuring the Dispersion of Data, Data Cleaning, Data Integration and Transformation, Data Reduction.
Unit II Data Warehouse and OLAP Technology: An Overview , What Is a Data Warehouse? , A Multidimensional Data Model, From Tables and Spreadsheets to Data Cubes, Stars, Snowflakes, and Fact Constellations: Schemas for Multidimensional databases, Examples for Defining Star, Snowflake and Fact Constellation Schemas, Measures: Their Categorization and Computation, Concept Hierarchies, OLAP Operations in the Multidimensional Data Model. Data Warehouse Architecture:Steps for the Design and Construction of Data Warehouses, A ThreeTier Data Warehouse Architecture, Data Warehouse Back-End Tools and Utilities. Data Warehouse Implementation.

Unit III Mining Frequent Patterns, Associations, and Correlations: Basic Concepts and a Road Map, Efficient and Scalable Frequent Itemset Mining Methods: The Apriori Algorithm: Finding Frequent Itemsets Using Candidate Generation, Generating Association Rules from Frequent Itemsets, Improving the Efficiency of Apriori, Mining Frequent Itemsets without Candidate Generation. Mining various kinds of Association Rules: Mining Multilevel Association Rules, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses.

Unit IV Classification and Prediction: What Is Classification? What Is Prediction? , Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Decision Tree Induction, Attribute Selection Measures. Bayesian Classification: Naïve Bayesian Classification, Bayesian Belief Networks, Training Bayesian Belief Networks. Rule-Based Classification: Using IF-THEN Rules for Classification, Rule Extraction from a Decision Tree, Rule Induction Using a Sequential Covering Algorithm.

Unit V Cluster Analysis: What is Cluster Analysis? , Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods. Hierarchical Methods: Agglomerative and Divisive Hierarchical Clustering, BIRCH: Balanced Iterative Reducing and Clustering Using Hierarchies . Density-Based Methods, Outlier Analysis

MONTESSORI MAHILA KALASALA

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ADVANCED JAVASCRIPT

BSC III Year VI Semester

Unit I:: JQuery – Basics: String, Numbers, Boolean, Objects, Arrays, Functions, Arguments, Scope, Built-in Functions. jQuery – Selectors: CSS Element Selector, CSS Element ID Selector, CSS Element Class Selector, CSS Universal Selector, Multiple Elements E, F, G Selector, Callback Functions. jQuery – DOM Attributes: Get Attribute Value, Set Attribute Value. jQuery – DOM Traversing : Find Elements by Index, Filtering out Elements, Locating Descendent Elements, JQuery DOM Traversing Methods.

Unit II:: jQuery – CSS Methods : Apply CSS Properties, Apply Multiple CSS Properties, Setting Element Width & Height, JQuery CSS Methods. jQuery – DOM Manipulation Methods: Content Manipulation, DOM Element Replacement, Removing DOM Elements, Inserting DOM elements, DOM Manipulation Methods. jQuery – Events Handling: Binding event handlers, Removing event handlers, Event Types, The Event Object, The Event Attributes. jQuery – Effects: JQuery Effect Methods, jQuery Hide and Show, jQuery Toggle, jQuery Slide – slideDown, slideUp, slideToggle, jQuery Fade – fadeIn, fadeOut, fadeTo, jQuery Custom Animations

Unit III:: Intro to jQuery UI: Need of jQuery UI in real web sites, Downloading jQuery UI, Importing jQuery UI, Draggable, Droppable, Resizable, Selectable, Sortable, , Date Picker, Dialog, Menu, Progress Bar,ϖAccordion, Auto Complete, Button Set Slider, Spinner, Tabs, Tooltip, Color Animation, Easing Effects, addClass, removeClass, Effects, jQuery UI themes, Customizing jQuery UI widgets / plug-ins, jQuery UI with CDN, Consuming jQuery Plug-ins from 3rd party web sites jQuery Validations, Intro to jQuery validation plug-in, Using jQuery validation plug-in, Regular expressions.

Unit IV:: Intro to AJAX, Need of AJAX in real web sites, Getting database data using jQueryAJAX, Inserting, Updating, Deleting database data using jQuery-AJAX Grid Development using jQuery-AJAX

Intro to JSON JSON syntax, Need of JSON in real web sites, JSON object, JSON array, Complex JSON objects, Reading JSON objects using jQuery.

UNIT V:: Intro to AngularJS: Need of AngularJS in real web sites, Downloading AngularJS, AngularJS first example, AngularJS built-in directives, AngularJS expressions, AngularJS modules, AngularJS controllers, AngularJS scope AngularJS dependency injection AngularJS, bootstrapping AngularJS data bindings, AngularJS $watch, AngularJS filters, AngularJS events, AngularJS AJAX, Ng-repeat, AngularJS with json arrays, AngularJS registration form and login form, AngularJS CRUD AngularJS $q,ϖoperations, AngularJS Animations, AngularJS validations AngularJS custom values, AngularJS custom factories, AngularJS custom services, AngularJS custom directives, AngularJS custom providers, AngularJS Routing, AngularUI Routing.

BCA SEMESTER VI
PYTHON SYLLABUS

UNIT I **12hrs**

Basics of python programming: features of python, writing &executing first python program, Literal constants, variables.

Unit II **12hrs**

Data types, input operation, comments, reserved words, Indentation, operators& expressions ,expression in python, operations on strings, other data types, type conversion.

Unit III **12hrs**

Decision control statements-conditional Branching statements, Basic loop structures, Nested loops, the break statements, the else statement used with loops.

Unit IV: **12hrs**

Classes and Object: Classes and objects, class methods and Aruguments, class variables and object variables, public and private data members.

Unit V **12hrs**

Inheritance classes in python, types of inheritance, Abstract classes and interfaces, error and exception handling-Intrroduction to errors and exceptions, handling exception.

IIIB.s.c. SEMESTER VI

OOP THROUGH JAVA

UNIT – I Introduction: Features of Java, The Java virtual Machine, Parts of Java Naming Conventions and Data Types: Naming Conventions in Java, Data Types in Java, Literals Operators in Java: Operators, Priority of Operators Control Statements in Java: if... else Statement, do... while Statement, while Loop, for Loop, switch Statement, break Statement, continue Statement, return Statement Input and Output: Accepting Input from the Keyboard, Reading Input with Java.util.Scanner Class, Displaying Output with System.out.printf(), Displaying Formatted Output with String.format() Arrays: Types of Arrays, Three Dimensional Arrays (3D array), arrayname.length, Command Line Arguments

UNIT – II Strings: Creating Strings, String Class Methods, String Comparison, Immutability of Strings Introduction to OOPs: Problems in Procedure Oriented Approach, Features of ObjectOriented Programming System (OOPS) Classes and Objects: Object Creation, Initializing the Instance Variables, Access Specifiers, Constructors Methods in Java:Method Header or Method Prototype, Method Body, Understanding Methods, Static Methods, Static Block, The keyword 'this', Instance Methods, Passing Primitive Data Types to Methods, Passing Objects to Methods, Passing Arrays to Methods, Recursion, Factory Methods Inheritance: Inheritance, The keyword 'super', The Protected Specifier, Types of Inheritance

UNIT – III Polymorphism: Polymorphism with Variables, Polymorphism using Methods, Polymorphism with Static Methods, Polymorphism with Private Methods, Polymorphism with Final Methods, final Class Type Casting: Types of Data Types, Casting Primitive Data Types, Casting Referenced Data Types, The Object Class Abstract Classes: Abstract Method and Abstract Class Interfaces: Interface, Multiple Inheritance using Interfaces Packages: Package, Different Types of Packages, The JAR Files, Interfaces in a Package, Creating Sub Package in a Package, Access Specifiers in Java, Creating API Document Exception Handling: Errors in Java Program, Exceptions, throws Clause, throw Clause, Types of Exceptions, Re – throwing an Exception

UNIT – IV Streams: Stream, Creating a File using FileOutputStream, Reading Data from a File uingFileInputStream, Creating a File using FileWriter, Reading a File using FileReader, Zipping and Unzipping Files, Serialization of Objects, Counting Number of Characters in a File, File Copy, File Class Threads: Single Tasking, Multi Tasking, Uses of Threads, Creating a Thread and Running it, Terminating the Thread, Single Tasking Using a Thread, Multi Tasking Using Threads, Multiple Threads Acting on Single Object, Thread Class Methods, Deadlock of Threads, Thread Communication, Thread Priorities, thread Group, Daemon Threads, Applications of Threads, Thread Life Cycle

UNIT – V Applets: Creating an Applet, Use , Uses of Applets

IIIB.s.c. SEMESTER VI

WEB TECHNOLOGY

UNIT I **12hrs**

HTML: Basic HTML, Document body, Text, Hyperlinks, adding more formatting, Lists, table using images More HTML: multimedia objects, frames forms towards interactive, HTML document heading detail.

Unit II **12hrs**

CASCADINGSTYLESHEETS: ITroduction, usingstyles, simple examples,your own styles, properties & values in styles, style sheets, formatting blocks of information layers.

Unit III **12hrs**

Introduction to Javascript :what is DHTML, Javascript, basics, variables, string manipulations, mathematical functions, statements, operators, arrays, functions, object in Javascript: data &

Unit IV: **12hrs**

DHTML with javascript : Data validation, opening a new window, messages and confirmations, the status bar, different frames, rollover buttons, moving images.

Unit V **12hrs**

XML : defining data for web application ,basic XML,document type defining presentating XML, document object model. Web services

BCA Semester II

OBJECT ORIENTED ANALYSIS AND DESIGN

UNIT I: The Object Model-The Evolution of the Object Model: The generations of programming languages, The topology of Programming languages. Foundations of the Object Model: Object Oriented Analysis, Object Oriented design, Object Oriented Programming. Elements of the Object Model: Programming Paradigm(programming style), The Major and Minor Elements of the Object Models, Abstraction, Encapsulation, Modularity, Hierarchy(single inheritance, multiple inheritance, Aggregation), Static and Dynamic Typing, Concurrency, Persistence. Semester Course Code Course Title Hours/Week Hours Credits II C5 OBJECT ORIENTED ANALYSIS AND DESIGN 4 60 4

UNIT II: Classes and Objects-The Nature of an Object: What is and what is not an Object, State, Behavior, and Identity. Relationships among Objects: Links, Aggregation. The Nature of a Class: Interface and Implementation, Class Lifecycle. Relationships among Classes: Association: Semantic Dependencies, Multiplicity, Inheritance, Polymorphism, Aggregation, Dependencies. The Interplay of Classes and Objects: Relationship between Classes and Objects, On Building Quality Classes and Objects: Measuring the Quality of an Abstraction, Choosing Operations, Choosing Relationships, Choosing Implementations.

UNIT III: Classification-The Importance of Proper Classification: The Difficulty of Classification, The Incremental and Iterative Nature of Classification. Identifying classes and Objects: Classical and Modern Approaches. Object Oriented Analysis: Classical Approaches, Behavior Analysis, Domain Analysis, Use Case Analysis, CRC Cards, Informal English Description, Structured Analysis. Key Abstractions and Mechanisms: Identifying Key Abstractions: Refining Key Abstractions, Naming Key Abstractions. Identifying Mechanisms.

UNIT IV: The Unified Modeling Language:Diagram Taxonomy: Structure Diagrams, Behavior Diagrams. The Use of Diagrams in Practice: Conceptual, Logical and Physical Models, The Role of Tools. The Syntax and Semantics of the UML: The Package Diagrams, Component Diagrams, Deployment Diagrams, Use Case Diagrams.

UNIT V: The Syntax and Semantics of the UML: Activity Diagrams, Class Diagrams, Sequence Diagrams, Interaction Diagrams, Composite Structure Diagrams, State Machine Diagrams, Timing Diagrams, Object Diagrams, Communication Diagrams.

BCA SEMESTER IV

DESIGN OFOBJECT ORIENTED APPLICATIONS

UNIT I: Process-First Principles: Traits of Successful Projects: Strong Architectural Vision, Iterative and Incremental Lifecycle. Toward a Rational Development Process,The Macro Process: The Software Development Lifecycle, Overview, The Macro Process Content Dimension-Disciplines, The Macro Process Time Dimension-Milestones and Phases, The Macro Process Time Dimension-Iterations, Release Planning. The Micro Process: The Analysis and Design Process, Overview, Level of Abstraction, Activities, Products, The Micro Process and Level of Abstraction, Identifying Elements, Defining Elements of Collaborations, Defining Element Relationships, Detailing Element Semantics. Semester Course Code Course Title Hours/Week Hours Credits IV C13 DESIGN OFOBJECT ORIENTED APPLICATIONS 4 60 4

UNIT II: Pragmatics-Management Planning: Risk Management, Task Planning, Development Review. Staffing: Resource Allocation, Development Team Roles. Release Management: Configuration Management and Version Control, Integration, Testing. Reuse: Elements of Reuse, Institutionalizing Reuse. Quality Assurance and Metrics: Software Quality, Object-Oriented Metrics. Documentation: Development Legacy, Documentation Contents. Tools: Kinds of Tools, Organizational Implementations. Special Topics: Domain-Specific Issues, Adopting ObjectOriented Technology. The Benefits and Risks of Object-Oriented Development: The Benefits of Object Oriented Development, The Risk of Object Oriented Development.

UNIT III: System Architecture:Satellite-Based Navigation: Inception, Elaboration, Construction, PostTransition. Control System: Traffic Management: Inception, Elaboration, Construction, PostTransition.

UNIT IV: Artificial Intelligence: Cryptanalysis: Inception, Elaboration, Construction, Post-Transition. Data Acquisition:Weather Monitoring station: Inception, Elaboration, Construction, PostTransition.

UNIT V: Web Application: Vacation Tracking System: Inception, Elaboration, Construction, Transition and Post-Transition. Object-Oriented Programming Languages: Language Evolution, Smalltack, C++, Java.

BCA SEMESTER IV

DATA ANALYTICS USING R

Unit I Introduction: Introducing to R Data Structures –Help functions in R –Vectors –Scalars – Declarations – recycling –Common Vector operations –Using all and any –Vectorized operations –NA and NULL values –Filtering – Vectorised if-then else –Vector Equality –Vector Element names Matrices, Arrays and Lists: Creating matrices –Matrix operations –Applying Functions to Matrix Rows and Columns – Adding and deleting rows and columns –Vector/Matrix Distinction –Avoiding Dimension Reduction – Higher Dimensional arrays –lists –Creating lists –General list operations – Accessing list components and values –applying functions to lists –recursive lists Data Frames: Creating Data Frames –Matrix-like operations in frames –Merging Data Frames –Applying functions to Data frames –Factors and Tables – factors and levels –Common functions used with factors –Working with tables -Other factors and table related functions -Control statements – Arithmetic and Boolean operators and values –Default values for arguments -Returning Boolean values

Unit II Packages in R Tidyr, ggplot2, ggraph, dplyr, tidyquant, dygraphs Introduction to Data analytics: Overview of Bigdata, Need of Data Analytics, Applications of Data Analytics, Datasets, tools for data analytics Basic Statistics: Mean, Median, Standard Deviation, Variance, Correlation, Covariance

Unit III Basic Analysis Techniques: Chi-Square Test, t-Test, Analysis of Variance, Corrleation Analysis

Unit IV Data Analysis Techniques Linear Regression, Logistic Regression, Classification Techniques, Clustering Techniques, Ensemble model

Unit V Data Visualization Using R

BCA Semester IV

Web Programming

Unit-I: PHP Basics Introduction, Identifiers, Variables, Constants, Data Types, Operators, Conditional Statements, PHP Loops. Working with Arrays: Arrays, Creating Arrays, some Array-Related Functions. Working with Objects: Creating Objects, Object Instance. Working with Strings, Dates and Time: Formatting Strings with PHP), Investigating Strings with PHP , Manipulating Strings with PHP, Using Date and Time Functions in PHP.

Unit-II: PHP Advanced. Advantages of Using functions, Types of functions, creating and invoking functions, returning values, recursive functions, Object Oriented Concepts, File handling and Data Storage: creating, open/close a file, file operations: read,write,append. File truncate, file uploading, EOF in PHP.

Unit-III: Working with Forms in PHP. Creating Forms, Accessing Form - Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, and Working with File Uploads. Working with Cookies and User Sessions: Semester Course Code Course Title Hours/Week Hours Credits IV C12 Web Programming 4 60 4 Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsettling Variables, Using Sessions in an Environment with Registered Users.

Unit-IV: Introduction to Java Script. Java Script: Introduction – Basic commands – Variables – Operators – Control structures – Arrays - Window and document object – Forms and form elements – String, math and dates – multiple windows.

Unit-V: Angular JS Getting started with Angular JS, Modules, Components, Built in Directives, Custom directives. Use of built – in directive, Data Binding, filters, custom filters, constants.

B.COM IV SEMESTER

DATA BASE MANAGEMENT SYSTEM

Unit - I: Overview of Database Management System Introduction, Data and Information, Database, Database Management System, Objectives of DBMS, Evolution of Database Management System, Classification of Database Management System.

Unit - II: File-Based System File Based System. Drawbacks of File-Based System, DBMS Approach, Advantage of DBMS, Data Models, Components of Database System, Database Architecture, DBMS Vendors and their products.

Unit - III: Entity-Relationship Model: Introduction, The building Blocks of an Entity-Relationship, Classification of entity set, Attribute classification, relationship degree, Relationship classification, Generalization and specialization, Aggregation and composition, CODD's Rules, Relational Data Model, Concept of Relational Integrity.

Unit – IV: Structured Query Language Introduction, History of SQL Standards, Commands in SQL, Data types in SQL, Data Definition Language (DDL),Selection Operation Projection Operation, Aggregate Functions, Data Manipulation Language, Table Modification, Table Truncation, Imposition of Constraints, Set Operations.

Unit – V: PL/SQL: Introduction, structure of PL/SQL,PL/SQL Language Elements, Data Types, Control Structure, Steps to Create a PL/SQL Program, Iterative Control Cursors, Steps to Create a Cursor, Procedure, Functions, Packages, Exceptions Handling, Database Triggers, Types of triggers.

BCA Semester VI

Networking Programming

UNIT I

INTRODUCTION : Overview of UNIX OS - Environment of a UNIX process - Process control – Process relationships Signals – Inter-process Communication- overview of TCP/IP protocols

UNIT II

ELEMENTARY TCP SOCKETS: Introduction to Socket Programming –Introduction to Sockets – Socket address Structures – Byte ordering functions – address conversion functions – Elementary TCP Sockets – socket, connect, bind, listen, accept, read, write , close functions – Iterative Server – Concurrent Server.

UNIT III

APPLICATION DEVELOPMENT:TCP Echo Server – TCP Echo Client – Posix Signal handling – Server with multiple clients –boundary conditions: Server process Crashes, Server host Crashes, Server Crashes and reboots,Server Shutdown – I/O multiplexing – I/O Models – select function – shutdown function – TCP echo Server (with multiplexing) – poll function – TCP echo Client (with Multiplexing)

UNIT IV

SOCKET OPTIONS, ELEMENTARY UDP SOCKETS: Socket options – getsocket and setsocket functions – generic socket options – IP socketoptions –ICMP socket options – TCP socket options – Elementary UDP sockets – UDP echo Server – UDP echo Client – Multiplexing TCP and UDP sockets – Domain name system – gethostbyname function.

UNIT V

ADVANCED SOCKETS: Ipv4 and Ipv6 interoperability – threaded servers – thread creation and termination – TCP echo server using threads – Mutexes – condition variables – raw sockets – raw socket creation – raw socket output – raw socket input – ping program – trace route program.

B.Com Semester VI

PHP

Syllabus

Unit-I: PHP Basics **9 Hrs.**

Introduction, Identifiers, Variables, Constants, Data Types, Operators, Conditional Statements, PHP Loops.

Working with Arrays: Arrays, Creating Arrays, some Array-Related Functions. Working with Objects: Creating Objects, Object Instance. Working with Strings, Dates and Time: Formatting Strings with PHP), Investigating Strings with PHP , Manipulating Strings with PHP, Using Date and Time Functions in PHP.

Unit-II: PHP Advanced **9 Hrs.**

Advantages of Using functions, Types of functions, creating and invoking functions, returning values, recursive functions, Object Oriented Concepts, File handling and Data Storage: creating, open/close a file, file operations: read,write,append. File truncate, file uploading, EOF in PHP.

Unit-III: Working with Forms in PHP **9 Hrs.**

Creating Forms, Accessing Form - Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, and Working with File Uploads. Working with Cookies and User Sessions:

Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsettling Variables, Using Sessions in an Environment with Registered Users.

Unit-IV: Introduction to Java Script **9 Hrs.**

Java Script: Introduction – Basic commands – Variables – Operators – Control structures – Arrays - Window and document object – Forms and form elements – String, math and dates – multiple windows.

Unit-V: Angular JS **9 Hrs.**

Getting started with Angular JS, Modules, Components, Built in Directives, Custom directives. Use of built – in directive, Data Binding, filters, custom filters, constants.