Dr. M.G.R.
EDUCATIONAL AND RESEARCH INSTITUTE
(Deemed to be University)

Maduravoyal, Chennai - 600 095. Tamilnadu. India.

(An ISO 9001 : 2015 Certified Institution)

DEPARTMENT OF COMPUTER APPLICATIONS

MCA

Computer Applications

Curriculum Enrichment

Dr. M.G.R. Educational And Research Institute • Deemed to be University • Registrar Office Periyar E.V.R. High Road Maduravoyal Chennai-95

C. B. Palaniveli

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DEPARTMENT OF COMPUTER APPLICATIONS

Course Code	Name of the Course+B1	year	Activities/Content with direct bearing on Employability/ Entrepreneurship/ Skill development
MCA16G001*	Data Structures And Algorithms	2016	Skill development
MCA16G003	Database Technologies	2016	Skill development
MCA16G004	Object Oriented Programming	2016	Employability
MCA16GL02	Database Laboratory	2016	Employability
MCA16G007*	Computer Networks	2016	Skill development
MCA16G008*	Operating System	2016	Skill Development
MCA16G009*	Java Programming	2016	Employability
MCA16GL03*	Java Programming Laboratory	2016	Employability
MCA16GL04*	Operating System Laboratory	2016	Employability
MCA16G010*	Enterprise Resource Planning	2016	Entrepreneurship
MCA16G011	Mobile Application Development	2016	Skill development
MCA16G013	Web Programming	2016	Employability
MCA16GL06	Web Programming Laboratory	2016	Employability
MCA16G003	Database Technologies**	2016	Skill development
MCA16GL02	Database Laboratory**	2016	Employability
MCA16G014*	C# And .Net Framework	2016	Employability
MCA16GL07*	C# and .Net Laboratory	2016	Employability
MBA16AE02	Entrepreneurship Development	2016	Entrepreneurship
MCA16G017	Virtual Reality	2016	Skill development
MCA16GL09*	Case Tools and Software Testing Laboratory	2016	Skill development
MCA16GL10	Mini Project	2016	Employability
MCA16GL11*	Project Work	2016	Employability
MCA19G003	SOFTWARE ENGINEERING	2019	Skill development
MCA19G005	Computer Graphics and multimedia	2019	Skill development
MCA19G006	Data Communication Network	2019	Employability
MCA19G010	Data Mining and Warehousing	2019	Employability
MCA19G011	PHP Programming with MYSQL	2019	Employability
MCA19G014	Open source software	2019	Skill development
MCA20G009	Python Programming	2020	Employability
MCA20G008	C# and .Net Framework	2020	Employability

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G001 DATA STRUCTURES AND ALGORITHMS 3 0 0 3

OBJECTIVES:

- The fundamental design, analysis, and implementation of basic data structures and algorithms;
- This course aims to introduce a number of popular data structures and algorithms, along with the basic techniques in algorithm analysis.
- On the completion of the course, students should be able to:
- understand common data structures and algorithms, and be able to implement them;
- analyze the complexities of data structures and algorithms;
- Choose appropriate data structures and algorithms for problem solving.

UNIT I **9 Hrs**

Arrays-Array as an Abstract data type-Polynomial abstract data types-Sparse Matrixes-Representation of array- Stacks and Queues –Stacks Abstract data type-Evocation of expressions-Linked Lists-Singly Linked Lists-Circular lists- Polynomials-Sparse matrices-Doubly linked lists.

UNIT II **9 Hrs**

Trees – Introduction-Binary Trees - Binary Tree Traversal- Inorder -Preorder- Postorder-Binary Search Trees-Balanced Trees-Threaded Binary trees-Threads-Inorder Traversal –Inserting a Node-Heaps-Priority Queues-Definition ,Insertion and Deletion of Max heap.

UNIT III **9 Hrs**

Sorting -Insertion sort – Quick sort – Merge sort- Heap sort- Sorting on several keys- External sorting-k-way merging-Buffer Handling for Parallel Operation.

UNIT IV **9Hrs**

Graphs: Representation – Operations-Depth first search-Breadth first search-spanning trees-Minimum Cost Spanning Trees- Kruskal's Algorithm-Prim's Algorithm-Shortest Paths-Single source/All Destination: Nonnegative Edge Costs-General Weights-Static Hashing-Dynamic Hashing.

UNIT V **9Hrs**

Algorithms: Divide and Conquer –Merge sort–Greedy Method-Knapsack Problem-Backtracking-The 8-Queens Problem-Branch and Bound-Traveling Sales Person Problem.

total No. of Hrs: 45

REFERENCES:

1. Horowitz,E, Sahni,S& d Mehta (2002) *Fundamentals of Data Structures in C++*(2nd Ed),,Galgotia.
2. Horowitz,E,Sahni,S&Rajasekaran,S (2002) *Computer Algorithms*,Galgotia.
3. Weiss,M,A(1994) *Data structures & Algorithm Analysis in C++*, Benjamin cummings..
4. Sara Baase (1998) *Computer Algorithms – Introduction to Design and Analysis* ,AW.
5. Gregory L.Heileman(1996) *Data Structures ,Algorithms and Object Oriented Programming* – Mc Graw Hill International Editions .

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G003 DATABASE TECHNOLOGIES 3 0 0 3

OBJECTIVES:

- Understand basic database concepts, including the structure and operation of the relational data model.
- Construct simple and moderately advanced database queries using Structured Query Language (SQL).
- Discuss selected advanced database topics, such as object relational database systems and the data warehouse**.**

UNIT I **9 Hrs**

INTRODUCTION: An Overview of Database Systems-Introduction to Database Design -The Relational Model - Relational Algebra And Calculus, SQL: Queries, Constraints, Triggers.

UNIT II **9 Hrs**

STORAGE AND INDEXING: Overview Of Storage And Indexing, Storing Data: Disks And Files, Tree-Structured Indexing, Hash-Based Indexing

UNIT III **9 Hrs**

Transaction Management: Overview of Transaction Management, Concurrency Control, Crash Recovery

UNIT IV **9 Hrs**

OBJECT AND OBJECT RELATIONAL DATABASES: Concepts for Object Databases, Object Database Standards, Languages, and Design, Object-Relational and Extended-Relational Systems

UNIT V **9 Hrs**

EMERGING TECHNOLOGIES: XML and Internet Databases, Data Mining Concepts, Overview of Data Warehousing and OLAP, Emerging Database Technologies and Applications

Total No. of Hrs: 45

REFERENCES:

1. Raghu Ramakrishnan & Johannes Gehrke(2004), *Database Management Systems*(3rd ed), McGraw Hill.(UNIT I, II & III)
2. Elmasri,R&Navathe,S.B(2007) *Fundamentals of Database Systems*(5th Ed), Pearson Education/Addison Wesley(UNIT IV & V)
3. Henry F Korth, Abraham Silberschatz, Sudharshan,S(2006) *Database System Concepts*(5th ed), McGraw Hill.
4. Date,C,J, Kannan,A &Swamynathan,S(2006) *An Introduction to Database Systems*(8th Ed), Pearson Education.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G004 OBJECT ORIENTED PROGRAMMING 3 0 0 3

OBJECTIVES:

- The student will be able to understand the concepts of classes and object
- Define classes for a given situation and instantiate objects for specific problem solving
- Reuse available classes after modifications if possible
- Possess skill in object oriented thought process

UNIT I 9 Hrs

History and evolution of oop - Concept of Object orientation – why related data and methods should be kept as a single unit – comparison with procedural and structured programming –Classes and objects – data abstraction, encapsulation, inheritance,polymorphism,dynamic binding, message passing. Advantages of object orientation reusability,maintenance, security, comfort in programming. Input and output streams in C++; Basic data types and declarations.

UNIT II 9 Hrs

Classes and objects in C++, access modifiers, static members, friend functions, Constructors and Destructors, polymorphism, Operator Overloading and type conversion, anonymous objects

UNIT III 9 Hrs

Inheritance- parent and child classes, private, public and protected inheritance, Multiple inheritance and multi-level inheritance, Virtual base classes. C++ and memory models – new and delete operators, Heap, dynamic objects.

UNIT IV 9 Hrs

Binding & Polymorphism: Early binding, Late Binding, Pointers to derived class objects, virtual functions, Pure virtual functions,abstract classes, object slicing, exception handling in C++: try, throw and catch.

UNIT V 9 Hrs

Study of File stream classes in C++. Templates – class andfunction templates, Templates versus macros, String objects in C++, Standard Template Library inC++ - containers, associative containers Name spaces.

Total No. of Hrs: 45

REFERENCES:

1. Core Ashok N. Kamthane, *Object oriented Programming with ANSI & Turbo C++*, Pearson
2. H M Deitel& P J Deitel(2010), "*C++: how to program*", Pearson Education.
3. Robert Lafore(2001), *Object Oriented Programming in Turbo C++*, Galgotia Publications.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL02 DATABASE LABORATORY 0 0 8 3

OBJECTIVES:

- Student has acquired basic concept of DBMS
- Students will become familiar with SQL and its use in DBMS.
- Student has acquired knowledge of implementation DDL COMMANDS.
- Students will be able to develop real time applications.

1. Online reservation system
2. Banking System
3. Personal information
4. Student mark processing system
5. Hotel Management
6. Stock Maintenance
7. College admission system

Total No. of Hrs. needed to complete the Lab: 30

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G007 COMPUTER NETWORKS 3 003

OBJECTIVES:

- To be familiar with the basics of data communication;
- To be familiar with various types of computer networks;
- To have experience in designing communication protocols;
- To be exposed to the TCP/IP protocol suite.

UNIT I **9 Hrs**

Introduction - Uses of computer networks-Network Hardware and Software- Reference models-Network Standardization

UNIT II **9 Hrs**

The Physical Layer - The Theoretical basis for Data Communication-Guided Transmission Media-Wireless Transmission-Communication Satellites-Public Switched Telephone Network-Mobile Telephone System – Cable Television-The Data Link Layer-Data link layer design issues – Error Detection and Correction- Elementary Data Link Protocols-Sliding Window Protocols – Protocol Verification

UNIT III **9 Hrs**

The Medium Access Control Sub layer - The Channel Allocation Problem –Multiple Access Protocols-Ethernet-Wireless Lan- Broadband Wireless - Bluetooth - Data Link Layer Switches

UNIT IV **9 Hrs**

The Network layer-Design Issues - Routing Algorithms – Congestion Control Algorithms-Quality of Service – Internetworking - The network layer in the Internet

UNIT V **9 Hrs**

The Transport layer-The Transport Service- Elements of Transport Protocols-Simple Transport Protocol-The Internet Transport protocol (UDP and TCP)- Performance issue-The application layer - The Domain Name System (DNS)-Electronic mail –The World Wide Web-Multimedia

Total no. of Hrs : 45

REFERENCES:

1. Andrew S. Tanenbaum(2008) *Computer Networks*(4th ed), PHI.
2. Fred Halsall(1995) *Data Communication, Computer networks and Open Systems*,(4th ed), Addison Wesley.
3. Miller .M.A(2000) *Data and Computer Communications*, Vikas publishing House.
4. Prakash C.Gupta(1999), *Data Communications*, PHI.
5. Behrouz A.Forouzan(2000) *Dataa Communication and Networking*(2nd ed.), Tata McGraw Hill.
6. William Stallings(2000), *Data and Computer Communication*(6th ed), Pearson Education Asia.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G008 OPERATING SYSTEM 3104

OBJECTIVES:

- To understand the structure and organization of the file system.
- To understand what a process is and how processes are synchronized and scheduled.
- To understand different approaches to memory management.

UNIT I 12 Hrs

Introduction-Definition of OS-Mainframe System-Desktop Systems-Multi processor System-Distributed-Clustered-Real time Systems-Handheld Systems-Operating System Structure-System Components-Services-System Calls-System Programs-System Design and Implementation, Process concepts: Process Scheduling-Operations on Processes-Co-operating Processes-Inter Process Communication

UNIT II 12 Hrs

CPU Scheduling: Scheduling Concepts-Criteria-Scheduling Algorithms-Multiprocessor Scheduling-Real time Scheduling-Process synchronization-Critical Section Problem- Peterson's solution problem-Synchronization Hardware-Semaphores-Classical Problems of Synchronization-Critical Regions-Monitors-Deadlocks-Characterization-Handling Deadlocks-Deadlock Prevention-Avoidance-Detection-Deadlock Recovery

UNIT III 12 Hrs

Memory management -Storage Hierarchy-Storage Management Strategies-Contiguous-Non Contiguous Storage Allocation-Single User-Fixed Partition-Variable Partition-Swapping-Virtual Memory-Basic Concepts-Multilevel Organization-Block Mapping-Paging-Segmentation-Page Replacement Methods-Locality-Working Sets

UNIT IV 12 Hrs

I/o and file systems -Disk Scheduling-File Concepts-File System Structure-Access Methods-Directory Structure-Protection-Directory Implementation-Allocation Methods-Free Space Management- Disk structure- Disk attachment – Disk scheduling – Disk Management-Case Study: Linux System.

UNIT V 12 Hrs

Distributed Operating Systems: Types of distribute OS-Network structure and topology - design issues - naming and transparency-remote file access- Stateful versus stateless service - Event ordering - mutual exclusion – atomicity - concurrency control Deadlock handling - Election Algorithms-Real time systems - Multimedia systems

Total no. of Hrs : 60

REFERENCES:

1. Silberschatz& Galvin(2004) *Operating System Concepts*,(6th ed), John Wiley & Sons, Inc.
2. Milankovic M(1992) *Operating System Concepts and Design*, (2nd ed), McGraw Hill.
3. Bhatt,P,C(2004) *An Introduction to Operating Systems-Concepts and Practice*, Prentice Hall Of India.
4. Deitel,H,M(2002) *An Introduction to Operating Systems*, (2nd ed), Pearson Education.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G009 JAVA PROGRAMMING 3 1 0 4

OBJECTIVES:

- Understand fundamentals of programming such as variables, conditional and iterative execution, methods, etc.
- Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc.
- Be aware of the important topics and principles of software development.
- Have the ability to write a computer program to solve specified problems.
- Be able to use the Java SDK environment to create, debug and run simple Java programs

UNIT I **12 Hrs**

Introduction to Java - Features of Java - Object Oriented Concepts - Lexical Issues - Data types - Variables - Arrays - Operators - Control Statements

UNIT II **12 Hrs**

Classes – Objects – Methods - Constructors – Garbage Collection-Finalize() method-Overloading methods – Access Control – Static and final methods – Nested and Inner Classes – Inheritance – Overriding methods – Using super – Abstract class

UNIT III **12 Hrs**

Packages – Access Protection – Importing packages – Interfaces – Exception Handling – – Multithreaded Programming-Thread Class – Synchronization – Messaging – Runnable Interface - Multiple threads–Inter thread communications – Deadlock – Threads –Suspending - Resuming - Stopping

UNIT IV **12 Hrs**

I/O Streams – File Streams- Byte Streams-Character Streams – Applets –Applet Class - Applet Architecture-– String Handling - String Buffer – Java utility-Collection Class-String Tokenizer-Date-Calendar-Gregorian Calendar.

UNIT V **12 Hrs**

Basics - Socket programming – Proxy Servers – TCP / IP Sockets – Net Address – URL – Datagrams – Working with windows using AWT Classes – AWT Controls – Layout Managers and Menus.

Total no. of Hrs : 60

REFERENCES:

1. Naughton,P&Schildt, H,*Java 2 The Complete Reference*(5th ed), TMH
2. Arnold,K&Gosling,J,*The Java Programming Language*(2nd ed).

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL03 JAVA PROGRAMMING LABORATORY 0 0 8 3

OBJECTIVES:

- Program structure in general, and Java syntax, data types, flow of control, classes, methods, objects, arrays, exception handling, recursion, and graphi
- cal user interfaces (GUIs).
- Develop the ability to solve real-world problems through software development in Java
- Develop efficient Java applets and applications using OOP concept
- Become familiar with the fundamentals and acquire programming skills in the Java language.

APPLICATIONS:

1. Finding area and Perimeter of a circle. Use Buffered Reader Class
2. Substring Removal from a string. Use String Buffer Class
3. Determining the order of numbers generated randomly using Random Class
4. Implementation of Point Class for Image manipulation
5. Usage of Calendar Class and manipulation
6. String Manipulation using Char Array
7. Database Creation for storing e-mail addresses and manipulation.
8. Usage of Vector Classes
9. Implementing Thread based applications & Exception Handling
10. Application using synchronization such as Thread based, class based and synchronized statements

APPLETS:

1. Working with Frames and Various controls
2. Working with Dialogs and Menus
3. Working with Panel and Layout
4. Incorporating Graphics
5. Working with colors and Font

Total No. of Hrs. needed to complete the Lab: 30

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL04 OPERATING SYSTEM LABORATORY 0 0 8 3

OBJECTIVES:

- State how the shell functions at the user interface and command line interpreter.
- Use I/O redirection, pipes, quoting, and filename expansion mechanisms.
- Create structured shell programming which accept and use positional parameters and exportedvariables.
- Use shell debugging mechanisms to improve shell program efficiency and detect and correct errors.

1. Unix commands
2. Implementation of System calls
3. Implementation of Semaphores.
4. File permissions, File operations, File copy and move
5. Dining philosophers problem
6. Producer-consumer problem concept
7. Job scheduling algorithms(FCFS, SJF,PS,RR)
8. Shell programs in Unix.

Total No. of Hrs needed to Complete the Lab: 30

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G010 ENTERPRISE RESOURCE PLANNING 3 0 0 3

OBJECTIVES:

- To learn about Introduction to ERP and the Benefits of Implementation
- Developing a Business Case to Justify an ERP Implementation
- To understand Business Process Alignment and the value chain process.
- To learn about implementing and expanding of ERP

UNIT I **9 Hrs**

Introduction to ERP – Evolution – Growth –Advantages of ERP- need of ERP- Integrated Management information - Business Modeling - Integrated Data Model - Chain – Supply and demand chain- Extended Supply chain

UNIT II **9 Hrs**

ERP and Related Technologies – BPR – MIS – DSS – EIS - Data Warehousing - Data Mining – OLAP - A Manufacturing Perspective – MRP - BOM - Closed Loop MRP- MRP-II – DRP - JIT and Kanban - CAD/CAM – PDM - Data Management Benefits of PDM - MTO and MTS – ATO - CRM

UNIT III **9 Hrs**

Benefits of ERP - ERP Modules – Finance - Plant Maintenance - Quality Management -Materials Management - ERP Market: SAP AG - People Soft - BAAN and ORACLE - JD Edwards

UNIT IV **9 Hrs**

ERP Implementation Life Cycle – Pro-evaluation Screening - package Evaluation - Project planning phase - Gap – Analysis – reengineering – configuration - implementation team-Training – Testing- Going Live – End User Training - Post implementation - Business Models and BAPIs - Convergence on Windows NT - Application platforms - New Business segment and Features

UNIT V **9 Hrs**

ERP Procurement Issues – Market Trends – Outsourcing ERP – Economics – Hidden Cost Issues – ROI – Analysis of cases from five companies

Total no. of Hrs : 45

REFERENCES:

1. Alexis Leon(2004) *Enterprise Resource Planning* , Tata McGraw-Hill, New Delhi.
2. Alexis Leon (2006) *Enterprise Resource Planning Demystified* , Tata McGraw-Hill, New Delhi.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G011 MOBILE APPLILCATION DEVELOPMENT 3 1 0 4

UNIT I INTRODUCTION TO MOBILE APPLILCATION 12 Hrs

Introduction to Mobile Telephony – Mobile device – communication standard: GSM, CDMA, UMT – Introduction to 1G / 2G / 3G / 4G – LTE – Mobile application : categories – factors in developing mobile applications – mobile application development – Software Architecture – application models framework and tools – HTML 5 – Java Script – AJAX.

UNIT II INTRODUCTION TO ANDROID 12 Hrs

Introduction to Android – Installation – Android Architecture – Application Fundamentals – SDK features – development framework – Android Application and Activities – creative user interface – layouts – views – menu – graphics – animation – intents.

UNIT III ANDROID TOOLS 12 Hrs

Android File management tool – Database Storage – working with SQ-Lite – GPS functionality – location based API – creating map based activities – geocoding location based service – handling audio and video service – Networking: using Bluetooth – Managing connectivity – Telephony – SMS.

UNIT IV MOBILE OPERATING SYSTEM 12 Hrs

iOs Programming: Introduction to Objective C : Class objective – methods – interface – inheritance – Introduction to foundation framework classes – file handling – property list. NSCopy and archiving selectors and targets – Dynamic Binding. Introduction to iPhone : Architecture – Development IDE – XCODE, interface builder, Creating simple applications – Handling basic interaction – creating basic view controllers – Monitoring and action – Creating advanced view controllers.

UNIT V INTERFACE 12 Hrs

Storyboarding integration – Programmatic Interface creation – integrating with core services – Email contracts – data actions preference – files and addresses – camera – Webkit – database with iPhone applications – code data integration – advanced controllers – navigation controllers – integration with Core Service – core audio – video – event handling – gesture recognition – maps an location protocols and categories – communication with the service – using the accelerometer – Bluetooth Programming.

Totalno.of.Hrs : 60

REFERENCES:

1. Retomeier, "*Profession Android2 application Development*", Wiley Publications

2. Dimarzio,J,I(2010), "*Android – a programmer's guide*", McGraw Hill.

3. James A. Brannan, Blake Ward(2011), "*iOs SDK Programming*", Tata McGraw Hill.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G013 WEB PROGRAMMING 3 0 0 3

OBJECTIVES:

- To understand the concepts and architecture of the World WideWeb.
- To understand and practice mark uplanguages
- To understand and practice embedded dynamic scripting on client side InternetProgramming
- To understand and practice web development techniques onclient-side

UNIT I INTRODUCTION TO WWW 9 Hrs

Internet Standards – Introduction to WWW – WWW Architecture – SMTP – POP3 – File Transfer Protocol - Overview of HTTP, HTTP request – response — Generation of dynamic web pages.

UNIT II UI DESIGN 9 Hrs

Markup Language (HTML): Introduction to HTML and HTML5 - Formatting and Fonts - Commenting Code – Anchors – Backgrounds – Images – Hyperlinks – Lists – Tables – Frames - HTML Forms.

Cascading Style Sheet (CSS): The need for CSS, Introduction to CSS – Basic syntax and structure - Inline Styles – Embedding Style Sheets - Linking External Style Sheets – Backgrounds - Manipulating text - Margins and Padding - Positioning using CSS.

UNIT III INTRODUCTIONTOJAVASCRIPT 9 Hrs

Introduction - Core features - Data types and Variables - Operators, Expressions, and Statements - Functions - Objects - Array, Date and Math related Objects - Document Object Model - Event HandlingControlling Windows & Frames and Documents - Form handling andvalidations.

UNITIV INTRODUCTIONTOVBSCRIPT 9 Hrs

Introduction to VBScript - Variables - Data types - Control Structures & Loops -Functions in VBSCript- Client side web scripting - Validating forms - DOM - Handling errors

UNITV PHP 9 Hrs

Introduction - How web works - Setting up the environment (LAMP server) - Programming basics - Print/echo - Variables and constants – Strings and Arrays – Operators, Control structures and looping structures – Functions – Reading Data in Web Pages - Embedding PHP within HTML - Establishing connectivity with MySQL database- Introduction to python.

Total No. of Hrs: 45

REFERENCS:

1. Harvey & Paul Deitel& Associates, Harvey Deitel and Abbey Deitel(2011), *Internet and World Wide Web - How To Program*(5th Ed.), Pearson Education.
2. Achyut S Godbole and AtulKahate(2012),*Web Technologies*(2nd Ed.), Tata McGraw Hill.
3. Thomas A Powell & Fritz Schneider(2013), JavaScript: The Complete Reference(3rd ed), Tata McGraw Hill.
4. David Flanagan(2011),*JavaScript: The Definitive Guide*(6th ed), O'Reilly Media.
5. Kingsley-Hughes, A*VBScript Programmers Reference* (2nd ed), Wrox Press
6. Steven Holzner(2008),*The Complete Reference – PHP*(2008), Tata McGraw Hill.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL06 WEB PROGRAMMING LABORATORY 0 0 8 3

Objectives:

- To learn how to create a simple web page using html along with the usage of style sheets, lists, creation or tables with borders, padding and colors.
- Use Cascading Style Sheets (CSS) to design web pages
- Use CSS to create web pages with specialized fonts and design elements
- Use Javascript to control browser frames and windows

1. Create a web page with the following usingHTML5
   (i) To embed an image map in a webpage
   (ii) To fix the hotspots
   (iii) Show all the related information when the hot spots areclicked.
2. Create a web page with all types of Cascading stylesheets.
3. ImplementClientSideScriptsforValidatingWebFormControlsusingJavaScript.
4. Develop and demonstrate a HTML file that includes JavaScript that uses functions for the followingproblems:
   a) Parameter: Astring
      Output: The position in the string of the left-most vowel
   b) Parameter: A number
      Output: The number with its digits in the reverse order
5. Write a VBScript for LoanCalculation.
6. DesigningQuizApplicationUsingVBScript
7. DevelopPHPprogramusingArrays,controlstructures,loopingstructuresandForm Handling
8. Using PHP and MySQL, develop a program to accept book information viz. Accession number, title, authors, edition and publisher from a web page and store the information in a database and to search for a book with the title specified by the user and to display the search results with properheadings
9. Developaweb applicationforAirlineReservationSystemusingPHP

Total No. of Hrs. needed to Complete the Lab : 30

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G003 DATABASE TECHNOLOGIES 3 0 0 3

OBJECTIVES:

- Understand basic database concepts, including the structure and operation of the relational data model.
- Construct simple and moderately advanced database queries using Structured Query Language (SQL).
- Discuss selected advanced database topics, such as object relational database systems and the data warehouse**.**

UNIT I **9 Hrs**

INTRODUCTION: An Overview of Database Systems-Introduction to Database Design -The Relational Model - Relational Algebra And Calculus, SQL: Queries, Constraints, Triggers.

UNIT II **9 Hrs**

STORAGE AND INDEXING: Overview Of Storage And Indexing, Storing Data: Disks And Files, Tree-Structured Indexing, Hash-Based Indexing

UNIT III **9 Hrs**

Transaction Management: Overview of Transaction Management, Concurrency Control, Crash Recovery

UNIT IV **9 Hrs**

OBJECT AND OBJECT RELATIONAL DATABASES: Concepts for Object Databases, Object Database Standards, Languages, and Design, Object-Relational and Extended-Relational Systems

UNIT V **9 Hrs**

EMERGING TECHNOLOGIES: XML and Internet Databases, Data Mining Concepts, Overview of Data Warehousing and OLAP, Emerging Database Technologies and Applications

Total No. of Hrs: 45

REFERENCES:

1. Raghu Ramakrishnan & Johannes Gehrke(2004), *Database Management Systems*(3rd ed), McGraw Hill.(UNIT I, II & III)
2. Elmasri,R&Navathe,S.B(2007) *Fundamentals of Database Systems*(5th Ed), Pearson Education/Addison Wesley(UNIT IV & V)
3. Henry F Korth, Abraham Silberschatz, Sudharshan,S(2006) *Database System Concepts*(5th ed), McGraw Hill.
4. Date,C,J, Kannan,A &Swamynathan,S(2006) *An Introduction to Database Systems*(8th Ed), Pearson Education.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL02 DATABASE LABORATORY 0 0 8 3

OBJECTIVES:

- Student has acquired basic concept of DBMS
- Students will become familiar with SQL and its use in DBMS.
- Student has acquired knowledge of implementation DDL COMMANDS.
- Students will be able to develop real time applications.

1. Online reservation system
2. Banking System
3. Personal information
4. Student mark processing system
5. Hotel Management
6. Stock Maintenance
7. College admission system

Total No. of Hrs. needed to complete the Lab: 30

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G014 C# AND .NET FRAMEWORK 3 0 0 3

OBJECTIVES :

- A working knowledge of the C# programming language.
- Apply and practice logical ability to solve the problems.
- The ability to effectively use visual studio .NET.
- An understanding of the goals and objectives of the .NET Framework. .NET is a revolutionary concept on how software should be developed and deployed.

UNIT I **9 Hrs**

Introduction to C# -Introducing C#- Understanding .NET - Overview of C# - Literals – Variables - Data types – Operators – Expressions – Branching – Looping – Methods – Arrays - Strings – Structures - Enumerations

UNIT II **9 Hrs**

Object Oriented Aspects of C# Classes – Objects – Inheritance – Polymorphism –Interfaces - Operator overloading – Delegates – Events - Errors and Exceptions

UNIT III **9 Hrs**

Application development on .NET-Building window Applications - Accessing Data with ADO.NET

UNIT IV **9 Hrs**

Web based application development on .NET Programming - web applications with Web Forms - Programming web services

UNIT V **9 Hrs**

The CLR and the .NET Framework - Assemblies - Versioning – Attributes – Reflection - Viewing Metadata - Type Discovery - Reflecting on a Type – Marshalling – Remoting- Understanding server object Types - Specifying a server with an interface - Building a server - Building the client - Using single call – Threads

Total no. of Hrs : 45

REFERENCES:

1. Balagurusamy,E(2004) *Programming in C#*, Tata McGraw-Hill.
2. Liberty,J (2002) *Programming in C(*2nd ed.),O'Reilly.
3. Herbert Schildt(2004) *The complete Reference:C#,*Tata McGraw-Hill.
4. Robinson et al(2002*) Professional C#*(2nd ed.)Wwrox press.
5. Andrew Troelsen(2003) *C# and the .NET Platform,*AI press.
6. Tamariselvi, S &Murugesan, R(2003) *A Text Book on C#,* Pearson Education.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL07 C # and .NET LABORATORY 0083

OBJECTIVES:

- Understand, analyze and use language interfaces, and inheritance.
- Familiar with using .NET collections (sets, lists, dictionaries).
- Understand, analyze and use exceptions, Windows Forms, .NET Remoting and Serialization.
- Build interactive web applications using ASP.NET and C#.

1. To implement the Inheritance Concept.
2. To perform the Bank Transaction using Interface concept.
3. Create a User defined exception and handle it.
4. To implement the idea about Multithreading.
5. To implement the concept of Polymorphism.
6. To implement the concept of Operator Overloading.
7. To implement a calculator using Windows Application.
8. To maintain student record using ADO.NET.
9. To implement the Library Management System using ADO.NET
10. To implement the Inventory system using Web Applications with Web forms.
11. To implement the employee Management System using Web Services

Total No. of Hours needed to Complete the Lab : 30

DEPARTMENT OF COMPUTER APPLICATIONS

MBA16AE02 ENTERPRENEURSHIP DEVELOPMENT 3 0 0 3

Objectives:

- To impart basis managerial knowledge and understanding
- To develop and strengthen entrepreneurial quality and motivation
- To develop small and medium enterprises sector which is necessary for employment generation and wider dispersal of industrial ownership

UNIT I **9 Hrs**

Entrepreneur –Meaning – Definition – Characteristics – Functions – Role of Entrepreneurs in the economic development – Classification of entrepreneurs – Factors affecting entrepreneurial growth.

UNIT II **9 Hrs**

Entrepreneurship – Concept – Distinction between Entrepreneur and Entrepreneurship - Entrepreneurship Development Programmes – Objectives - Stages in EDP- Pre-training Stage – Training phase – Post Training – Evaluation and Feedback of EDP.

UNIT III **9 Hrs**

Project Identification - Sources of ideas – Preliminary evaluation and testing of ideas – Constraints - Project formulation – Stages- Feasibility study and Feasibility Report – Selection Criteria.

UNIT IV **9 Hrs**

Project Report - Project Appraisal – Technical – commercial appraisal –Financial appraisal– Sources of finance – Steps to star an industrial unit.

UNIT V **9 Hrs**

Incentives and subsidies of State and Central Govt. – Aims – Backward areas – Industrial Estates –Role of DIC,SISI, TCO in entrepreneurial growth.

Total No of Hrs : 45

REFERENCES:

1. *Guide to Entrepreneurs – Industrial Development* – Govt. of Tamil Nadu – SIPCOT
2. Singh,P,N(1986) *Developing Entrepreneurship for Economic Growth*.
3. Thierry Burger Helmchen(2012), *Entrepreneurship Born, Made and Educated,* Marina Jozipovic.
4. Thierry Burger Helmchen(2012), *Entrepreneurship Creativity and Innovative Business Models,* Marina

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G017 VIRTUAL REALITY 3 **1 0 4**

OBJECTIVES:

- Understand the process and procedure involved in setting up a small enterprise.
- Acquire the necessary managerial skills required to run a small-scale industry.
- Know the pros and cons in becoming an entrepreneur.

UNIT I GEOMETRIC MODELLING **12Hrs**

Geometric Modeling : Introduction – From 2D to 3D – 3D space curves & 3D boundary representation – Geometrical Transformations: Modeling Transformations – Instances – Picking – Flying – 3 D Computer Graphics: Introduction- the perspective projection – human vision – stereo perspective projection – 3D clipping – Color theory – 3D modeling – Reflection models – Shading Algorithms – Realism – Stereographic image.

UNIT II INTRODUCTION TO VIRTUAL REALITY **12Hrs**

Virtual Environment : Introduction – Virtual Environments – requirements – benefits of Virtual Reality – Computer Environment – A Generic Virtual Reality System - Virtual Reality Technology – Model of interaction – Virtual Reality Systems.

UNIT III VIRTUAL ENVIRONMENT **12Hrs**

Animating the Virtual Environment : Introduction – The Dynamics of Numbers – The animation of objects – shape & object inbetweening – particle systems – Physical Simulation : Introduction – Objects falling in a gravitational field – Rotating wheels – Elastic collisions – Projectiles – Simple Pendulum – Springs.

UNIT IV HARDWARE & SOFTWARES **12Hrs**

Human factors : Introduction – Virtual Reality Hardware : Introduction – Sensor Hardware – Head-coupled displays – Acoustic Hardware – Integrated Virtual Reality Systems – Virtual Reality Software : Introduction – Modeling Virtual World – Physical Simulation – Virtual Reality Toolkits – Introduction to VRML.

UNIT V APPLICATIONS OF VIRTUAL RALITY **12Hrs**

Virtual Reality Applications : Engineering – Science - Entertainment – Training – The Future : Introduction – Virtual Environments – Modes of Interaction.

REFERENCES : **Total no.of.Hrs : 60**

1. John Vince(2007), *Virtual Reality Systems* , Pearson Education Asia.

2. Adams(200),*Visualization of Virtual Reality*, Tata McGraw Hill.

3. Grigore C. Burdea & Philippe Coiffet(2006), *Virtual Reality Technology*(2nd ed.), Wiley Interscience.

4. William R. Sherman & Alan B. Craig(2008), *Understanding Virtual Reality : Interface, Application, and Design.*

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL09 CASE TOOLS AND SOFTWARE TESTING LABORATORY 0 0 8 3

OBJECTIVES:

- Students will learn about Data Modelling Use work products – data dictionary, use case diagrams and activitydiagrams, build and test class diagrams, sequence diagrams and add interface to class diagrams.

Prepare the following documents for two or three of the experiments listed below and develop the software engineering methodology.

1. Program Analysis and Project Planning.

Thorough study of the problem – Identify project scope, Objectives, Infrastructure.

2.Software requirement Analysis.

Describe the individual Phases / Modules of the project, Identify deliverables.

3. Data Modeling.

Use work products – Data dictionary, Use diagrams and activity diagrams, build and test lass diagrams, Sequence diagrams and add interface to class diagrams.

4. Software Development and Debugging.

5. Software Testing.

Prepare test plan, perform validation testing, Coverage analysis, memory leaks, develop test case Hierarchy, Site check and Site monitor.

Suggested list of Applications:

1. Student marks analyzing system
2. Quiz marks analyzing system
3. Online ticket reservation system
4. Payroll system
5. Course registration system
6. Expert system
7. ATM systems
8. Stock maintenance
9. Real-Time scheduler
10. Remote procedure call implementation

Total No. of Hrs needed to Complete the Lab : 30

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16GL10 **MINI PROJECT** **0 0 10 10**

OBJECTIVES:

1. Students will be able to develop an application in specific domains. Students are expected to carry out the following:
   - i. Implementing the technologies or its combinations
   - **ii.** Analysing and modeling the concepts of system engineering
   - **iii.** Generate Database Models
   - **iv.** Develop an executable application
   - **v.** Prepare project report

DEPARTMENT OF COMPUTER APPLICATIONS

MCA16G11 **PROJECT WORK** **0 0 10 10**

OBJECTIVES:

2. Students will be able to develop an application in specific domains. Students are expected to carry out the following:
   - vi. Implementing the technologies or its combinations
   - **vii.** Analysing and modeling the concepts of system engineering
   - **viii.** Generate Database Models
   - **ix.** Develop an executable application
   - **x.** Prepare project report

DEPARTMENT OF COMPUTER APPLICATIONS

MCA19G003 SOFTWARE ENGINEERING 31 0 4

OBJECTIVES:

- This course introduces the concepts and methods required for the construction of large software intensive systems.
- It aims to develop a broad understanding of the discipline of software engineering
- It seeks to complement this with a detailed knowledge of techniques for the analysis and design of complex software intensive systems.

UNIT I **12 Hrs**

The Process:The Software Process- Software process- Software Process Models- Linear Sequential Model- Prototyping Model- RAD Model- Evolutionary Software Process Models - Project Management Concepts-The Management Spectrum- People- The Product- The Process.

UNIT II **12 Hrs**

Software Process And Project Metrics: Measures- Metrics and Indicators- Metrics in the Process and Project domains- Software measurement - Metrics for Software Quality. Software Project Planning - Project Planning Objectives- Resources- Software Project Estimation- Decomposition Techniques- Empirical Estimation Models- Risk Analysis-Software Risks- Risk Projection.

UNIT III **12 Hrs**

Project Scheduling And Tracking: Basic concepts- The relationship b/w people and Effort- Defining a Task Set for Software Project- Scheduling. Software Quality Assurance – Quality Concepts- Quality movement- Software quality assurance- Software Reviews. Software Configuration Management - The SCM Process- Identification of Objects in the software configuration- Version Control- Change Control- SCM standards.

UNIT IV **12 Hrs**

Analysis Concepts And Principles: Requirement Analysis- Requirement Elicitation for Software- Analysis Principles - Software Prototyping- Specification. Analysis Modeling- Data Modeling - Functional modeling and Information Flow- Behavioral Modeling- The mechanics of Structured Analysis- The Data Dictionary.

UNIT V **12 Hrs**

Software Testing Techniques: Software Testing Fundamentals- White-Box Testing- Basis Path Testing- Control Structure Testing- Black-Box Testing. Software Testing Strategies - A strategic approach to Software Testing - Strategic Issues- Unit Testing- Integration Testing -Validation Testing- System Testing- The Art Of Debugging. **Total No. of Hrs: 60**

REFERENCES:

1. Ian Sommerville (2017), *Software Engineering* (5th ed.) , Addision Wesley.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA19G005 COMPUTER GRAPHICS AND MULTIMEDIA SYSTEMS 3 1 0 4

OBJECTIVES:

- Designed to provide a comprehensive introduction to computer graphics leading to the ability to understand contemporary terminology- progress- issues- and trends.
- A thorough introduction to computer graphics techniques- focusing on 3D modeling- image synthesis- and rendering.

UNIT I **12 Hrs**

Introduction: Overview of Graphics System – Bresenham-s Algorithms – Line Drawing and Circle Drawing Algorithms - DDA - Line Clipping - Text Clipping

UNIT II **12 Hrs**

2D Transformations: Translation-Scaling and Rotations - Interactive Input methods - Polygons - Splines – Bezier Curves - Window view port mapping transformation

UNIT III **12 Hrs**

3D Transformations: 3D Concepts - Projections – Parallel Projection - Perspective Projection – Visible Surface Detection Methods - Visualization and polygon rendering – RGB Color models - animation – Key Frame systems - General animation functions - morphing.Histograms

UNIT IV **12 Hrs**

Overview of multimedia: Multimedia hardware & software - Components of multimedia – Text- Image – Graphics – Audio – Video – Animation – Authoring.

UNIT V **12 Hrs**

Multimedia systems and applications: Multimedia communication systems – Data base systems – Synchronization Issues – Presentation requirements – Applications – Video conferencing – Virtual reality – Interactive video – video on demand

Total no. of Hrs : 60

REFERENCES:

1. Hearn D and Baker M.P(2004) *Computer graphics – C Version*(2nd ed.), Pearson Education.
2. Siamon J. Gibbs &Dionysios C. Tsichritzis (1995) *Multimedia programming*, Addison Wesley.
3. John Villamil, Casanova &LeonyFernanadez Eliar (1998),*Multimedia Graphics*, PHI.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA19G006 DATA COMMUNICATION AND NETWORKS 3 1 0 4

OBJECTIVES:

- To study about the physical arrangement of networks, types and modes of networks, data conversions and transmission medium.
- To study the detection and correction of errors, link control and link protocols of data link layer
- To study about the standardized data interface and it's working principle
- To study the logic of link mechanisms used in networks and different layers of TCP/IP.

UNIT I **12 Hrs**

Data Communication Introduction: Networks – Protocols and standards – Standards organizations – Line configurations – Topology – Transmission mode – Categories of networks –OSI model- Functions of the layers- Transmission media- Guided media – Unguided media – Transmission impairment – Performance.

UNIT II **12 Hrs**

Error Control And Data Link Protocols : Error detection and correction- Types of errors – Error Detection Techniques - Data link control - Flow control – Error control - Data link protocols – Asynchronous protocols – Synchronus protocols-Character oriented protocols – BIT oriented protocols

UNIT III **12 Hrs**

Multiplexing And Switching : LAN Project 802 – Ethernet – Token bus – Token ring – FDDI- IEEE 802.6 (DQDB) – SMDS - Switching

UNIT IV **12 Hrs**

X.25, FRAME RELAY, ATM : X.25 Layers - Frame relay - Introduction – Frame relay operation – Frame relay layers – Congestion control – Leaky bucket algorithm - ATM: Design goals – ATM architecture – ATM layers – ATM applications. SONET / SDH: Synchronous transport signals – Physical configuration – SONET layers – Applications.

UNIT V **12 Hrs**

Networking Devices And Tcp / Ip Protocol Suite : Repeaters – Bridges – Gateways – Routing algorithms – Overview of TCP/IP - Application layer - Domain Name System (DNS) – Telnet – File Transfer Protocol (FTP) – Trivial File Transfer Protocol (TFTP) – Simple Mail Transfer Protocol (SMTP), Simple Network Management Protocol(SNMP)

REFERENCES:

a. Behrouz A.Forouzan(2000), *Data Communication and Networking*(2nd ed.), Tata McGraw Hill.
b. William Stallings(2003), *Data and Computer Communication*(8th ed.) Pearson Education.
c. Andrew Tannenbaum.S(2003),*Computer Networks*(4th ed.), Pearson Education.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA19G010 DATA MINING AND WAREHOUSING 3104

OBJECTIVES:

- Will learn the techniques for Developing Proper Data Warehouses
- Designed to know about the recent techniques in data mining
- Understand and implement classical models and algorithms in data warehouses and data mining
- Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering.

UNIT I **12 Hrs**

Introduction to Data Warehousing: Defining features - architecture of a Data Warehousing – Data Warehousing Schema – Dimensional modeling – ETL Process – Testing- Growth and maintenance - OLAP in Data Warehousing.

UNIT II **12 Hrs**

Data Mining: Data Mining Functionalities – Data Preprocessing – Data Cleaning – Data Integration and Transformation – Data Reduction –Mining Frequent patterns - Associations & correlations - Efficient and Scalable Frequent Item set Mining Methods – Mining Various Kinds of Association Rules – Association Mining to Correlation Analysis – Constraint Based Association Mining.

UNIT III **12 Hrs**

Classification and Prediction: Issues Regarding Classification and Prediction – Classification by Decision Tree Induction – Bayesian Classification – Rule Based Classification – Classification by Back propagation – Support Vector Machines - Prediction – Accuracy and Error Measures – Evaluating the Accuracy of a Classifier or Predictor.

UNIT IV **12 Hrs**

Cluster Analysis: Types of Data in Cluster Analysis – A Categorization of Major Clustering Methods – Partitioning Methods – Hierarchical methods – Density-Based Methods – Grid-Based Methods – Model-Based Clustering Methods .

UNIT V **12 Hrs**

Mining Object: Spatial- Multimedia- Text and Web Data: Multidimensional Analysis and Descriptive Mining of Complex Data Objects – Spatial Data Mining – Multimedia Data Mining – Text Mining – Mining the World Wide Web

Total no. of Hrs : 60

REFERENCES:

1. Jiawei Han & Micheline Kamber(2008), *Data Mining Concepts and Techniques* (2nd ed) , Elsevier, Reprit.
2. Soman,K.P, ShyamDiwakar&Ajay-V(2006), *Insight into Data mining Theory and Practice*, Easter Economy Edition, Prentice Hall of India.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA19G011 PHP PROGRAMMING WITH MYSQL 3 1 0 4

UNIT I 12 Hrs

Introduction to PHP: Evaluation of Php - Basic Syntax – variables – constant - Data type - Operators and Expression - Decisions and loop Making Decisions - Doing Repetitive task with looping - Mixing Decisions and looping with Html

UNIT II 12 Hrs

Function :Define a Function - Call by value and Call by reference - Recursive function -String Creating and accessing - String Searching & Replacing String - Formatting String - String Related Library function

UNIT III 12 Hrs

Array :Anatomy of an Array - Creating index based and Associative array Accessing array - Element Looping with Index based array - Looping with associative array using each () and foreach() - Some useful Library function - Handling Html Form with Php Capturing Form - Data Dealing with Multivalue filed - and Generating File uploaded form - redirecting a form after submission.

UNIT IV 12 Hrs

Working with file and Directories :Understanding file& directory - Opening and closing - a file Coping, renaming and deleting a file -working with directories - Creating and deleting folder -File Uploading & Downloading - Session and Cookie - Introduction to Session Control -Session Functionality - What is a Cookie - Setting Cookies with PHP -Using Cookies with Sessions - Deleting Cookies - Registering Session variables 0- Destroying the variables and Session - Exception Handling - Understanding Exception and error - Try, catch, throw - Error tracking and debugging.

UNIT IV 12 Hrs

Database Connectivity with MySql :Introduction to RDBMS - Connection with MySql Database - Performing basic database operation(DML) (Insert, Delete, Update, Select) - Setting query parameter - Executing queryJoin (Cross joins, Inner joins, Outer Joins, Self joins.)

REFERENCE:

a. Learning PHP, MySQL, books by ‘ O’ riley Press

DEPARTMENT OF COMPUTER APPLICATIONS

MCA19G014 OPEN SOURCE SOFTWARE 3 1 0 4

OBJECTIVES:

- To impart knowledge to make the students
- To understand the basics of open source software
- To create dynamic web applications using PHP- MySQL and AJAX

UNIT I **12 Hrs**

Introduction to Open Source: Overview of free/ open source software - history – advantages – disadvantages – Open Source business models– Open Source Licenses - types – Free/ Open source software examples

UNIT II **12 Hrs**

Basics of PHP Programming: PHP Programming: Introduction – Syntax – Variables - Controls and functions – Strings -Arrays: Using Arrays- Manipulating Arrays- Associative Arrays – Advanced Array Functions

UNIT III **12 Hrs**

Object Oriented Programming with PHP: Object-Oriented Programming with PHP – Strings and Regular Expression Functions – File system and System Functions – Sessions- Cookies and HTTP

UNIT IV **12 Hrs**

PHP and MySQL: MySQL Database Administration – PHP/MySQL Functions – Displaying Queries in Tables – Building Forms from Queries

UNIT V **12 Hrs**

PHP and AJAX: PHP and AJAX - introduction – JavaScript and AJAX Client: JavaScript and DOM – XMLHttpRequest Object – AJAX form validation

Total no. of Hrs : 60

REFERENCES:

1. Dan Woods & GautamGuliani (2005)*Open Source for the Enterprise*, PHP.
2. BogdanBrinzarea, lamandi CristianDarie and Audra Hendrix- (2009),*AJAX and PHP*, Packt Publishing..
3. Joseph Feller, Brain Fitzgerald & Eric S. Raymond (2001), *Understanding Open Source Software Development*(1st ed.), Addison -Wesley Professional.

DEPARTMENT OF COMPUTER APPLICATIONS

MCA20G008 C# AND .NET FRAMEWORK 3 1 0 4

OBJECTIVES:

- A working knowledge of the C# programming language.
- Apply and practice logical ability to solve the problems.
- The ability to effectively use visual studio .NET.
- An understanding of the goals and objectives of the .NET Framework. .NET is a revolutionary concept on how software should be developed and deployed.

UNIT I **12 Hrs**

Introduction to C# -Introducing C#- Understanding .NET - Overview of C# - Literals – Variables - Data types – Operators – Expressions – Branching – Looping – Methods – Arrays - Strings – Structures - Enumerations

UNIT II **12 Hrs**

Object Oriented Aspects of C# Classes – Objects – Inheritance – Polymorphism –Interfaces - Operator overloading – Delegates – Events - Errors and Exceptions

UNIT III **12 Hrs**

Application development on .NET-Building window Applications - Accessing Data with ADO.NET

UNIT IV **12 Hrs**

Web based application development on .NET Programming - web applications with Web Forms - Programming web services

UNIT V **12 Hrs**

The CLR and the .NET Framework - Assemblies - Versioning – Attributes – Reflection - Viewing Metadata - Type Discovery - Reflecting on a Type – Marshalling – Remoting- Understanding server object Types - Specifying a server with an interface - Building a server - Building the client - Using single call – Threads

Total no. of Hrs : 60

DEPARTMENT OF COMPUTER APPLICATIONS

MCA20G009 PYTHON PROGRAMMING 2 0 4 4

OBJECTIVES:

- To learn how to design Python applications.
- To learn how to write loops and decisions statements in Python
- To learn how read and write files in Python.
- To learn how to use inhertitance in Python for reusability.

UNIT I **12 Hrs**

Data Types and Data Structures: Introduction to Python - using the Python interpreter- Overview of programming in Python- Python built-in types- Arithmetic in Python- Program input and Program output- Variables and assignment. Strings and string operations - List basics - List operations- Dictionaries- Dictionary basics and Tuples

UNIT II **12 Hrs**

Control Structures: Control Statements: if statements- while statement- for statements- functions- formal arguments- variable-length arguments- Exceptions- detecting and handling exceptions.

UNIT III **12 Hrs**

Classes files and modules: Introduction to Classes and Objects: classes- class attributes- instances- instance attributes- binding and method invocation- inheritance- polymorphism- Built-in functions for classes and instances.

UNIT IV **12 Hrs**

Files and input/output: reading and writing files- methods of file objects- using standard library functions- dates and times

UNIT V **12 Hrs**

Database and : Python database application programmer"s interface (DB- API)- connection and cursor objects - Type objects and constructors - python database adapters. Creating simple web clients - introduction to CGI- CGI module- building CGI applications - python web application frameworks - Django.

Total no. of Hrs : 60

REFERENCES:

1. Wesley J. Chun (2000), *Core Python Programming* (2nd ed.), Pearson Education.
2. Guido Van Russom, Fred L.Drake (2003), *An Introduction to Python*, Network Theory Limited.
3. Magnus Lie Hetland (2009) , *Beginning Python: From Novice To Professional* (2nd ed.).

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