



Tilak Maharashtra Vidyapeeth, Pune

Department Of Computer Science

Syllabus of Master Of Computer Management (MCA)

SEMESTER – V

Subject : ASP.NET(MCA- 531)

1. Introduction to ASP.NET(3)

The .NET Framework, The .NET programming Framework, .NET languages, The .NET class library, ASP vs. ASP.NET, About ASP.NET, Basic difference between C# and VB.NET

2. ASP.NET 2.0 (10)

Features of ASP.NET 2.0, Stages in Web Forms Processing, Introduction to Server Controls, HTML Controls, Validation Controls, User control, Data Binding Controls, Configuration

3. Declaring Variables in ASP.NET (2)

Data Types, Initializes, Arrays, Enumerations. Variable Operations- Advanced Math Operations, Type Conversions. Object Based Manipulation - String Object, Date Time Object, Time span object & Array Object. Conditional Structures, Loop Structures, Functions & Subroutines – Parameters, Procedure Overloading, Delegates.

5. ASP. NET Applications(1)

ASP.NET file types, the bin directory, code-behind, The Global.asax, Understanding ASP.NET classes. ASP.NET configuration

6. Performing Data Access in ASP.NET / ADO.net with C#.net(6)

Overview of Data Access, Using the SqlDataSource Control, **Master Pages concepts**, Using the GridView Control, Using the DetailsView Control, Using the FormView Control, Using the Repeater Control, Using the DataList, DataGrid Control, **Asynchronous data Access, Bulk Copy and Batch Update Multiple Active ResultSet (MARS).**

7. Web Services (2)

Creating web services, Discovering web services , Installing and invoking web services, why Web Services, Architecture, Benefits of Web Services ,Backbones of Web Services , Web Services Business Models , Alternative to Web Services: .NET Remoting



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8. State Management in ASP.Net : (6)

Client - Side State Management: Cookies, Hidden Field, View State, Query String

Server – Side State Management : Application State ,Session State , Database Support, Page level state , Strong objects in Session State , Using Cookie less Session Ids.

Caching: An Overview, Data to be Cached – Time Frame, Output Caching.

For tutorial <http://www.homeandlearn.co.uk/csharp/csharp.html>

9. ASP.NET Security: (1)

Authentication & Authorization users, using windows authentication, using forms authentication, Using the Login Control.

Reference Books:

- 1) The complete Reference ASP.NET by Matthew MacDonald- Tata McGraw-Hill.
- 2) Professional ASP.NET – Wrox Publication
- 3) Microsoft .NET XML Web Services Step by Step by Adam Freeman

Subject : PHP(MCA-532)

1. Apache Web Server

- ☐ Linux distribution Apache installation, starting and stopping Web server.
- ☐ Apache configuration files, Apache Directives, Server Configuration.
- ☐ Directory level configuration: .htaccess and <Directory>, Access control, URL pathnames, MIME types, Authentication, log files.
- ☐ Virtual Hosting, IP Address based Virtual Host, Name based Virtual Host, Dynamic Virtual Hosting, Apache GUI configuration tools, Web server security.

2. PHP Language Core

- ☐ Introduction to PHP and Web server Architecture Model, PHP configuration parameters, and php.ini file.
- ☐ Overview of PHP capabilities, simple PHP script example, PHP and HTTP environmental variables.

3. PHP Language

- ☐ Variables, constants & data types and operators.



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- ☐ Decision making, flow control & loops.
- ☐ Array and Array operations, String and string operations.
- ☐ Functions- function declaration, and parameter passing.
- ☐ Outputting data (Include and required statements), File and Directory Access Operations.
- ☐ Error handling and reporting considerations. Processing HTML form with PHP.
- ☐ Login and authentication of users. GET, POST, SESSION, and COOKIE variables.
- ☐ Working with cookies, sending email. Session management and variables.
- ☐ Object oriented PHP: Classes and Constructors.

1. Database Operations with PHP

- ☐ Built-in database functions, connecting to MYSQL database, selecting a database, building and sending a query to database engine, retrieving the results, retrieving, inserting and updating the data.
- ☐ Sample database routines & code segments, Logging database operations for troubleshooting.

Reference Books:

- 1) The Complete Reference Linux 6th Edition
- 2) Beginning PHP, Apache, MYSQL Web development.
- 3) Teach yourself MYSQL in 21 days.

Subject: Object Oriented Software Engineering (MCA – 533)

1. Getting started

1.1. Models

1.1.1. Importance of modeling

1.1.2. Principles of modeling

1.1.3. Object-oriented modeling

1.2. Review of Object-Orientation

1.2.1. Objects and classes

1.2.2. Abstraction



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- 1.2.3. Inheritance
- 1.2.4. Polymorphism
- 1.2.5. Encapsulation
- 1.2.6. Message passing
- 1.2.7. Associations
- 1.2.8. Aggregation

2. Introduction to UML

- 2.1. History
- 2.2. The components of the UML
- 2.3. Building blocks of the UML: Things, Relationships, Diagrams
- 2.4. Common mechanisms in the UML
- 2.5. Architecture
- 2.6. Object Oriented Analysis
- 2.7. Object Oriented Design

3. Basic structural modeling

- 3.1. Classes
- 3.2. Relationships
- 3.3. Class diagrams

4. Advanced structural modeling

- 4.1. Interfaces, Types and Roles
- 4.2. Packages
- 4.3. Instances
- 4.4. Object diagrams

5. Basic behavioral modeling

- 5.1. Interactions
- 5.2. Use case diagrams
- 5.3. Interaction diagrams
- 5.4. Activity diagrams
- 5.5. Sequence diagrams
- 5.6. Communication diagram



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6. Advanced behavioral modeling

- 6.1. Events and Signals
- 6.2. State machines
- 6.3. Processes and Threads
- 6.4. Time and Space
- 6.5. State chart diagrams

7. Architectural modeling

- 7.1. Components and Component diagram
- 7.2. Deployment diagram
- 7.3. Collaborations

8. Object Oriented Testing

- 8.1. Class Testing
- 8.2. GUI testing
- 8.3. Object oriented Integration
- 8.4. Object Oriented Metrics.

Reference Books:

- 1) User Guide - Grady Booch, James Rumbaugh, Ivar Jacobson
- 2) UML 2 for dummies – Michael Jaeasse, Chonoles, James A.,
- 3) Schardt Learning UML 2.0 – Russmiles, Kim Hamilton
- 4) UML In a Nutshell- Sinan Si.Albir
- 5) UML Distilled- Martin Fowler

Subject: Cloud Computing (MCA-534)

1. Introduction to Linux Networking (10 Hours)

Basics of Linux OS, advance user management, permissions & Task Scheduling, RAID Implementation (RAID0, RAID1, RAID5, RAID6, RAID10), Logical Volume Management (LVM), software Management using rpm, yum.

Linux Networking: DHCP Server (Dynamic Host Configuration Protocol), Apache Web Server, FTP Server, NFS Server, CIFS Server, DNS Server, access control lists, Using other linux distributions (ubuntu, CentOS), understanding Routers & Switches, Security



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Enhanced Linux, using telnet, ssh, putty, using vnc, rdp, using GIT

2. Introduction to Virtualization (4 Hours)

What is virtualization, concepts, Implementation of Virtualization? Implementation of remote accessibility, advantages & disadvantages, limitation. Relationship between Virtualization & Cloud Computing.

3. Virtualization for Enterprise (6 Hours)

Virtualization for Enterprise: Vmware, Xen, KVM, Hyper-V, Virtual Box.

Bare Metal Virtualization (ESXi), iscsi Intro & Setup, NAS (Network attached storage) implementation, SAN (Storage Area Network) implementation, SNAPSHOTS, VLANS

4. Cloud Computing Fundamental (6 Hours)

Cloud Computing definition, private, public and hybrid cloud. Cloud types; IaaS, PaaS, SaaS. Benefits and challenges of cloud computing, public vs private clouds, role of virtualization in enabling the cloud; Business Agility: Benefits and challenges to Cloud architecture. Application availability, performance, security and disaster recovery; next generation Cloud Applications.

5. Cloud Applications & Services (6 Hours)

Technologies and the processes required when deploying web services; Deploying a web service from inside and outside a cloud architecture, advantages and disadvantages.

Cloud Services: Reliability, availability and security of services deployed from the cloud.

Performance and scalability of services, tools and technologies used to manage cloud

services deployment; Cloud Economics: Cloud Computing infrastructures available for

implementing cloud based services. Traditional Datacenter v/s Cloud, Open Stack, Working of Open stack

6. Security in Using Cloud (6hours)

Design security architectures that assure secure isolation of physical and logical infrastructures including compute, network and storage, comprehensive data protection at all layers, end-to-end identity and access management, monitoring and auditing processes and compliance with industry and regulatory mandates. Security & Privacy issues



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7. Selecting Cloud Platform (4 Hours)

Economics of choosing a Cloud platform for an organization, based on application requirements, economic constraints and business needs (e.g Amazon, Microsoft and Google) Analysis of Case Studies when deciding to adopt cloud computing architecture.

Reference Books:

1. Distributed and Cloud Computing, 1st edition, Morgan Kaufmann, 2011.
2. GautamShroff, Enterprise Cloud Computing Technology Architectur Applications [ISBN: 978-0521137355]
3. Toby Velte, Anthony Velte, Robert Elsenpeter, Cloud Computing, A Practical Approach [ISBN: 0071626948]
4. Dimitris N. Chorafas, Cloud Computing Strategies [ISBN: 1439834539]

Subject: Business Applications (MCA-535)

1. Sales Order Processing System

Sales Enquiry & preparation of Quotation

Order acceptance

Dispatch & Invoicing

Sales Analysis (based on products, Customers)

Sales Invoice

2. Purchase Order Processing System

Enquiry & receive Quotation

Vendor selection (Vendor analysis)

Order preparation (with delivery schedule)

Order amendment

Receipt of material (goods inward / GRN)

Supplier's bill passing

Follow up of pending purchase order

3. Inventory Management System

Stock accounting & control (raw material, work-in-progress, finished goods)

Stores transactions (Receipts, Issues & adjustments)



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Bin card & Stock ledger

Lead time

BOM processing with product configuration

Inventory levels – EOQ – ABC analysis

Inventory control Reports (slow moving - non moving items)

4. Hotel Management System

Enquiry & Booking (Room reservation)

Room & Services details

Check-in, Stay & Check-out of customer

Billing

5. Hospital Management System

Accommodation

Scheduling

Services – Nursing, Medical Attention, Surgery etc

Drug store Management

Catering Management

Patient History

Medical Data recovery

6. Employee information system

Management of all employee information

Payroll

Training

Recruitment

Appraisal Management

Reference Books:

1) MIS by W.S. Jawadekar

2) MIS by Jerome Kanter

3) MIS by Gordon B. Davis

4) MIS by Laudon and Laudon

5) Marketing Management by Philip Kotler



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- 6) Production and Operations Management by Mayer
- 7) Modern Production Management by R V Badi

Practical ASP.NET + PHP (MCA-536)

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