



# **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)**