

# Kadi Sarva Vishwavidyalaya, Gandhinagar

## MCA Semester III

### MCA-36 B: Advanced Web Development Technologies

#### Rationale:

The purpose of this course is to give students an understanding of MVC architecture, implementing MVC architecture in entity framework and working with advanced databases. This course covers advanced topic in ASP.NET with JSON, AJAX, JQUERY and Web API so that student can develop any web based advanced projects for the industry.

**Prerequisite:** Knowledge of Client Server Architecture, Use of Controls & Server, database, ASP.Net web services

#### Learning Outcomes:

This Course Covers -

- Developing web application using MVC Architecture
- Working with Entity Framework
- Implementing JSON, AJAX, JQUERY and Web API

**Teaching and Evaluation Scheme:** Students are evaluated on the basis of continuous evaluation system both in theory and practical classes based on various parameters like term work, class participation, practical and theory assignments, presentation, class test, Regular Attendance, etc.

Sub Total Credit	Teaching scheme		Examination scheme				
	(per week)		MID	CEC	External		Total Marks
	Th	Pr	Th	Th	Th.	Pr.	
4	3	2	25	25	50	50	150

#### Course Contents:

##### UNIT 1: Introduction ASP.NET

[20%]

Introducing ASP.NET MVC 4: What Is ASP.NET? | ASP.NET Web Pages | ASP.NET MVC

Installing ASP.NET MVC 4: Software Requirements for ASP.NET MVC4 | Installing ASP.NET MVC4 Server Components | Visual Studio Application Templates | Anatomy of ASP.NET MVC 4 Internet Application

ASP.NET MVC 4 Web Application: Description of the Application | Creating the Database

##### UNIT 2: MVC Architecture, Forms and HTML Helpers

[20%]

Understanding Controllers: The Routing Engine | Creating Controllers | Working with Action Methods

Understanding Views: View Engines | Working with Views | The Rendering Process | Understanding the Razor View Engine | Working with ViewData and ViewBag | Working with Strongly Typed Views | Understanding ASP.NET MVC Mobile features

Understanding Models: What Are Models? | Adding a Business Model | Adding View Models | Understanding Model Binding

Using Forms and HTML Helpers: The Action and the Method, (GET or POST), HTML Helpers, Other Input Helpers, Rendering Helpers

### **UNIT 3: Data, AJAX, jQuery, & Web API [20 %]**

Data validation: The Validation Workflow | Manual Validation | Validation with Data Annotations | Creating Custom Data Annotations

AJAX and JQuery: Introducing JQuery | Understanding Unobtrusive Javascript | Working with Ajax | Working with JSON | Introducing Web API

Security: Authentication and Authorization| Securing Controllers and Action Methods | Authenticating with External Sources | Implementing Membership and Roles | Securing ASP.NET MVC Applications Against External Attacks

### **UNIT 4: Testing Application [20%]**

Routing: Routing Concepts | Creating Custom Routes | Creating a Catch-all Segment | Adding Constraints to Routes | Understanding when Routing is Not Applied | ASP.NET Routing Vs. URL Rewriting | Generating Links and URLs

Testing the Application: Understanding Unit Testing | Examining the Test Project | Testing Controllers | Testing Routes

### **UNIT 5: Deploying Application [20%]**

Preparing the Application for Deployment | Deploying to an In-House Server | Deploying to Windows Azure

#### **Text Book:**

1. Beginning ASP.NET MVC 4, Jose Rolando Guay Paz, Apress
2. Professional ASP.NET MVC 5, Jon Galloway, Brad Wilson, K. Scott Allen, David Matson, Wrox Publication

#### **Chapter wise coverage**

- Unit 1: CH# 1, 2, 3 of Book-1
- Unit 2: CH# 4, 5, 6 of Book-1 and CH# 5 of Book-2
- Unit 3: CH# 7, 8, 9
- Unit 4: CH# 10, 11, 12

#### **Reference Books & Links**

1. Pro Asp.Net MVC 5, Adam Freeman, Apress
2. <http://www.asp.net/web-api/overview/older-versions>
3. <http://www.asp.net/mvc/overview/older-versions/getting-started-with-ef-5-using-mvc-4/implementing-basic-crud-functionality-with-the-entity-framework-in-asp-net-mvc-application>

#### **Practical List**

##### **Getting Started with ASP.NET MVC 4**

1. Intro to ASP.NET MVC 4
2. Adding a Controller
3. Adding a View
4. Adding a Model

5. Accessing Your Model's Data from a Controller
6. Examining the Edit Methods and Edit View
7. Adding a New Field to the Movie Model and Table
8. Adding Validation to the Model
9. Examining the Details and Delete Methods

#### **Getting Started with EF5 using MVC 4**

1. Creating an Entity Framework Data Model
2. Implementing Basic CRUD Functionality
3. Sorting, Filtering, and Paging
4. Creating a More Complex Data Model
5. Reading Related Data
6. Updating Related Data
7. Handling Concurrency
8. Implementing Inheritance
9. Implementing the Repository and Unit of Work Patterns
10. Advanced Entity Framework Scenarios

#### **API**

1. Enabling CRUD Operation in Web API 1
2. Using ASP.NET Web API1 with EF5