

# **GAMAKA**

## **Artificial Intelligence Solutions**

Office No 309, Paranjape – The Business Hub, Karve Road, Kothrud, Pune - 411038  
Email: [itplacements@gamakaai.com](mailto:itplacements@gamakaai.com) Cell: 91-7378483656. WhatsApp: 91-7378493293  
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### **Module 2: Professional .NET**

- **C#**
- **ASP.NET MVC 6, WEB API, Entity Framework 6**

Duration: 90 hours with hands on tutorials

Live Projects & 150 assignments.

#### **Course Description:**

This course provides students with hands on experience using Visual Studio to create dynamic web applications using ASP.NET MVC and C#. The class provides a thorough introduction to the C# programming language, including coverage of the essentials of the C# programming language, built in data types, operators, control structures, classes and methods, collections and exception handling.

Students learn how to leverage the power of the Model-View-Controller design pattern with the ASP.NET MVC Framework to separate the layers of a web application. Students will use the ASPX and Razor view engines to design a user interface. Students will learn how to build models to manage an application's data layer using both the Entity Framework and LINQ to SQL. And students will learn how to build controllers containing action methods to manage communication between views and models.

Other topics include data scaffolding; URL routing; implementing security; using MVC and Web Forms in the same application, unit testing; and deploying ASP.NET MVC applications. Comprehensive labs provide the students with experience creating, debugging, testing and deploying dynamic ASP.NET MVC applications.

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## Syllabus - C#

- Introduction To C# Environment
- Principle of OOPS
- Literals, Variables And Data Types
- Operators And Expressions
- Decision Making And Branching
- Decision Making And Looping
- Methods In C#
- Classes And Objects
- Structures And Enumeration
- Static Members
- Types of Constructors
- Value Types & Reference Types
- Boxing & Unboxing
- Inheritance And Polymorphism
- Abstract Class
- Interface
- Delegates & Events
- Arrays, Arraylist & Collection
- Generics, List<T>, IEnumerable<T>
- Dictionary, IDictionary<TKey, TVal>, HashSet, Sorted Set, Queues, Linked List, Stack
- Files & Streams
- Threading
- String Handling, StringBuilder
- Operator Overloading
- Managing Console I/O Operations
- Errors And Exceptions
- Dynamic
- Lambdas & Extension Methods
- Property Initializers
- Implicit Typing(var)
- Destructor & Dispose

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## Syllabus - ASP.NET MVC 6, WEB API, EF6

### Introduction to Asp.Net MVC 6

- The Model-View-Controller Pattern
- Differences Between MVC and Web Forms Applications
- Building a Simple MVC Application with Visual Studio
- NuGet
- Using DI, Repository, Unity, Ninject, AutoMapper, Structure Map Patterns with MVC, Windsor Castle - IOC
- Authentication and Authorization

### Working with Controllers and Actions

- Introduction to Controllers
- Using a Controller to Manage the Application
- Controller Actions
- Returning Action Result
- Redirection in Action Methods
- Asynchronous Controllers & Actions
- Custom Controller Factory

### Creating MVC Models

- Data and Business Rules in MVC Applications
- Creating a Custom Data Model
- Creating an Entity Framework Model
- Data Validation and Data Annotations
- Creating an Entity Framework Model
- Data Validation and Data Annotations

### Using MVC Views

- Views in ASP.NET MVC
- Creating Views, Partial Views
- Adding Content to a View
- SPA (Single Page Application) with Dynamic Views
- Modeling Binding
- Using Knockout and Bootstrap Views
- MVC5 Mobile
- View Switcher(Desktop/Tab/Mobile)

### HTML Helpers and Action Filters

- Using HTML Helpers in MVC
- Creating a Custom Helper
- Using Action Filters
- Creating a Custom Filter
- State Management (Hidden/Sessions/Application/Custom Binding)

### Routing and URLs

- Customizing Application URLs
- Creating Route Constraints
- Routing and Controllers Forms
- Attribute based Routing

### Changing Pages with Routing

- Unobtrusive Ajax
- Introducing the AJAX and JQuery Libraries
- Integrating Client-Side Script with MVC
- Using the MVC AJAX Helpers
- Working with JSON Data
- Unobtrusive Ajax

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## Entity Framework 6.0

- Introduction to Entity Framework Database First Modeling
- Model First Modeling
- Code First Modeling
- Entity Types (POCO, Entity Object Model, Self-Tracking Entities, POCO Proxy)
- Entity Loading Models (Eager Loading, Lazy Loading, Explicit Loading)
- Fluent API
- Data Annotations

## Web API

- Programming the API controller Mapping CRUD operations to HTTP verbs GET, POST, PUT / PATCH / MERGE, DELETE
- Connecting service URLs to operations with routing
- Web API clients and hosting
- Accessing Web API services from .NET, web and mobile clients
- Retrieving XML, JSON and Atom formatted data
- Hosting Web API services in IIS and custom applications
- Exploiting Web API service features
- Integrating Web API services with Entity Framework
- Validating with model binding and data annotations
- Securing Web API services

## Secure ASP.NET Core MVC Applications

- Cross-Site Scripting (XSS)
- Cross-Site Request Forgery (CSRF)
- SQL Injection.
- Do the Proper Error Handling.
- Enforce SSL and use HSTS.
- XXE (XML External Entities) attack.
- Improper Authentication & session management.
- Improper Authorization

## New Features in MVC6

- ASP.NET on Linux and OSX
- Unified Web API and MVC Controllers and View Components
- ASP.NET Dependency injection and xUnit.net