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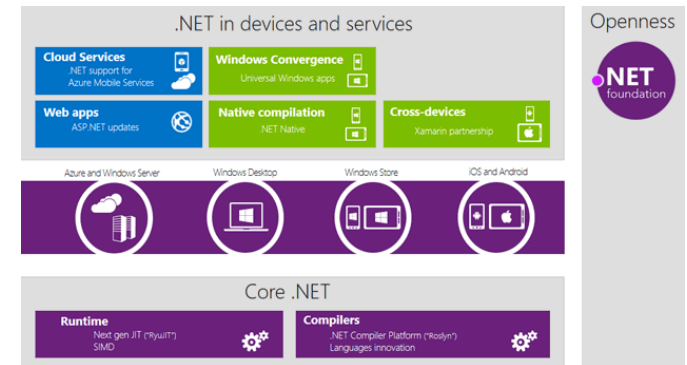ICT Trainings Institute – Engineering Your Career

.NET Web Applications

Course Guide

Microsoft Certified Solutions Developer – Web Applications is based on .NET technologies covers ASP.Net and C#. Program provides a comprehensive and consistent programming base for building applications that have visually stunning user experiences.

Courses can add towards no of MCSD Certifications:

MTA – HTML5 Application Development Fundamentals
MCP – HTML5, CSS3 with JavaScript – Exam 70-480
MCP – Dev. ASP.NET MVC Web Apps – Exam 70-486
MCSD – Web Applications
MCSD – SharePoint Applications

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.NET Course Contents

.NET training curriculum follows the Microsoft standards and is designed to meet the requirements of next generation programming needs.

Fundamentals

Creating applications with Visual Studio 2013
- Managing projects with Solution Explorer
- Setting project properties and adding references
- Adding files, folders and code
- Compiling, debugging and testing programs

Coding object-oriented applications
- Adding code in classes
- Programming fields and methods
- Encapsulating data with properties

HTML5

Build the user interface (UI) by using HTML5
- Choose and configure HTML5 tags to display text content
- Choose and configure HTML5 tags to display graphics
- When, why, and how to use Canvas; when, why, and how to use scalable vector graphics (SVG)
- Choose and configure HTML5 tags to play media
- Video and audio tags
- Choose and configure HTML5 tags to organize content and forms
- Tables, lists, sections; semantic HTML
- Choose and configure HTML5 tags for input and validation

Cascading Style Sheets (CSS3)

Format the user interface by using CSS

Understand the core CSS concepts
- Separate presentation from content (create content with HTML and style content with CSS); manage content flow (inline versus block flow); manage positioning of individual elements (float versus absolute positioning); manage content overflow (scrolling, visible, and hidden); basic CSS styling

Arrange UI content by using CSS
- Use flexible box and grid layouts to establish content alignment, direction, and orientation; proportional scaling and use of "free scale" for elements within a flexible box or grid; order and arrange content; concepts for using flex

box for simple layouts and grid for complex layouts; grid content properties for rows and columns; use application templates

Manage the flow of text content by using CSS
- Regions and using regions to flow text content between multiple sections (content source, content container, dynamic flow, flow-into, flow-from, msRegionUpdate, msRegionOverflow, msGetRegionContent); columns and hyphenation and using these CSS settings to optimize the readability of text; use "positioned floats" to create text flow around a floating object

Manage the graphical interface by using CSS
- Graphics effects (rounded corners, shadows, transparency, background gradients, typography, and Web Open Font Format); two-dimensional (2-D) and three-dimensional (3-D) transformations (translate, scale, rotate, skew, and 3-D perspective transitions and animations); SVG filter effects; Canvas

JavaScript

Manage and maintain JavaScript
- Create and use functions; jQuery and other third-party libraries

Update the UI by using JavaScript
- Locate/access elements; listen and respond to events; show and hide elements; update the content of elements; add elements

Code animations by using JavaScript
- Use animation; manipulate the canvas; work with images, shapes, and other graphics

Access data access by using JavaScript
- Send and receive data; transmit complex objects and parsing; load and save files; App Cache; datatypes; forms; cookies; localStorage

Code additional HTML5 APIs
- GeoLocation, Web Workers, WebSocket; File API

C Sharp (C#)

Getting Started
- Installing Visual Studio
- Creating a console application

Language Fundamentals
- Everything is an object
- Understanding C# syntax
- Identifier naming conventions
- Using the documentation

Declaring Variables
- Using built-in data types
- Declaring variables
- Working with characters, Strings
- Building strings with StringBuilder
- Parsing strings as numbers
- Using mathematical operators
- Working with Boolean values and expressions
- Using constants and enumerations
- Working with dates and times
- Using simple arrays

Managing Application Flow
- Getting input in a console application
- Evaluating conditions with if and else
- Evaluating conditions with switch statements
- Looping with for statements
- Looping with while and do statements
- Looping with foreach and in
- Creating reusable code with methods
- Managing variable visibility and scope
- Managing flow with break and continue
- Challenge: Building a simple calculator application
- Solution: Building a simple calculator application

Exception Handling and Debugging
- Understanding runtime exceptions
- Debugging exceptions in your code
- Handling exceptions with try/catch
- Using multiple catch statements
- Cleaning up with finally

Creating Custom Classes
- Defining a class with static methods
- Representing data with plain-old class objects
- Declaring private fields and public properties
- Declaring properties with shorthand get and set methods
- Overriding the ToString() method
- Adding multiple constructor methods
- Organizing classes with namespaces

Working with Inheritance and Polymorphism
- Extending a class to create a new class
- Overriding and calling base class methods
- Creating methods that accept sub-classed objects

Programming Web Applications with ASP.NET

Overview of .NET & Web Technologies
- Overview of Microsoft Web Technologies
- Overview of ASP.NET
- Introduction to ASP.NET MVC

Designing ASP.NET MVC Web Applications
- Planning in the Project Design Phase
- Designing Models, Controllers, and Views

Developing ASP.NET MVC Models
- Creating MVC Models
- Working with Data

Developing ASP.NET MVC Controllers
- Writing Controllers and Actions
- Writing Action Filters
- Add Controllers to an MVC Application to manage user interaction, update models, and select and return Views.

Developing ASP.NET MVC Views
- Creating Views with Razor Syntax
- Using HTML Helpers
- Reusing Code in Views

Testing and Debugging ASP.NET MVC Web Applications
- Unit Testing MVC Components
- Implementing an Exception Handling Strategy

Structuring ASP.NET MVC Web Applications
- Analyzing Information Architecture
- Configuring Routes
- Creating a Navigation Structure

Applying Styles to ASP.NET MVC Web Applications
- Using Template Views
- Applying CSS to an MVC Application
- Creating an Adaptive User Interface

Building Responsive Pages in ASP.NET MVC Web Applications
- Using AJAX and Partial Page Updates
- Implementing a Caching Strategy

Using JavaScript and jQuery for Responsive MVC Web Applications
- Rendering and Executing JavaScript Code
- Using jQuery and jQueryUI

Controlling Access to ASP.NET MVC Web Applications
- Implementing Authentication and Authorization

Building a Resilient ASP.NET MVC Web Application
- Developing Secure Sites
- State Management

Implementing Web APIs in ASP.NET MVC Web Applications
- Developing a Web API
- Calling a Web API from Mobile and Web Applications

Deploying ASP.NET MVC Web Applications
- Deploying a Web Application
- Deploying an MVC Application

Practical Approach
- A real example will be given throughout the lectures, starting from design, analysis, implementation and maintenance.

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