

# Lehrgang-Dokumentation



**Zentrum für Informatik ZFI AG**

**MCTS .NET Framework 4.0 Web + WCF + Accessing**

**Data Application Development (MATC-0112) -IT**

**Ausbildung nach Mass**

<http://www.zfi.ch/MATC-0112>

Weitere Infos finden Sie unter [www.zfi.ch](http://www.zfi.ch) oder via Adresse:

**Zentrum für Informatik ZFI AG  
Zentralsekretariat  
Technoparkstrasse 1  
CH-8005 Zürich  
Telefon: 044 732 40 00  
Telefax: 044 732 40 09**

**Zürich, Basel, Bern, Zürich, Schweiz**

<b>Titel</b>	<b>MCTS .NET Framework 4.0 Web + WCF + Accessing Data Application Development</b>
<b>Untertitel</b>	<b>Lehrgang zur Vorbereitung auf 3 x MCTS</b>
<b>Einleitung</b>	Mit Visual Studio 2010 hat Microsoft die Möglichkeit zur Erstellung von Web-Programmen nochmals erheblich verbessert. Damit können die Bedürfnisse der Anwender noch besser als früher umgesetzt werden. Die dazu notwendigen Technologien sind im .NET Framework vorhanden. Die (neue) Sprache Visual C# wird dabei optimal unterstützt und in diesem Lehrgang als Programmiersprache für die Beispiele verwendet. Dieser Lehrgang vermittelt dem erfahrenen Programmierer anderer Sprachen einen erweiterten Einblick in .NET und bereitet den Teilnehmer damit optimal auf den professionellen Einsatz als Programmierer von C#.NET-Web-Applikationen vor. Ein Muss für den angehenden .NET Entwickler. Dieser neue Microsoft-Lehrgang berücksichtigt bereits auch die Neuerungen des .NET Frameworks 4.0. Während dreier Prüfungs-Vorbereitungs-Workshop-Tage werden die Teilnehmenden optimal auf die Prometric-Examen vorbereitet. Dieser Lehrgang führt zu den drei offiziellen Zertifizierungen MCTS Web Application Development, MCTS WCF Development sowie MCTS Accessing Data. Die Prometric-Prüfungen sind im Lehrgangs-Preis nicht inbegriffen.
<b>Ihr Nutzen</b>	Der Teilnehmende kennt nach dem Kurs die Konzepte und Komponenten des aktuellen .NET-Frameworks und kann auch grössere und anspruchsvolle .NET-Web-Applikations-Programme mit C# selbständig realisieren.
<b>Voraussetzungen</b>	Gute Kenntnisse einer objektorientierten Programmiersprache sind unbedingte Voraussetzung. Für Programmier-Anfänger ist der vorgängige Besuch des ZFI-Kurses "Programmier-Grundkurs allgemein" (NFGL) und anschliessende Programmier-Praxis unerlässlich! Kenntnisse der englischen Sprache sind von Vorteil.
<b>Teilnehmerkreis</b>	Angehende .NET-Applikations-Entwickler, welche mit der Sprache C# Web-Applikations-Programme erstellen und unterhalten wollen.
<b>Unterlagen</b>	Original Microsoft-Kursunterlagen (englischsprachig, nach Wunsch und Verfügbarkeit deutschsprachig)
<b>Folgekurse</b>	ZFI-Lehrgang MAPD: Vorbereitung zum MCPD Web Developer 4
<b>Inhalt</b>	<p>10266:</p> <ul style="list-style-type: none"> <li>- Introducing C# and the .NET Framework</li> <li>- Introduction to the .NET Framework</li> <li>- Creating Projects Within Visual Studio 2010</li> <li>- Writing a C# Application</li> <li>- Building a Graphical Application</li> <li>- Documenting an Application</li> <li>- Running and Debugging Applications by Using Visual Studio 2010</li> </ul> <ul style="list-style-type: none"> <li>- Using C# Programming Constructs</li> <li>- Declaring Variables and Assigning Values</li> <li>- Using Expressions and Operators</li> <li>- Creating and Using Arrays</li> <li>- Using Decision Statements</li> <li>- Using Iteration Statements</li> </ul> <ul style="list-style-type: none"> <li>- Declaring and Calling Methods</li> <li>- Defining and Invoking Methods</li> <li>- Specifying Optional Parameters and Output Parameters</li> </ul>

**Handling Exceptions** Handling Exceptions Raising Exceptions

**Reading and Writing Files** Accessing the File System Reading and Writing Files by Using Stream

**Creating New Types** Creating and Using Enumerations Creating and Using Classes Creating and Using Structs Comparing References to Values

**Encapsulating Data and Methods** Controlling Visibility of Type Members Sharing Methods and Data

**Inheriting From Classes and Implementing Interfaces** Using Inheritance to Define New Reference Types Defining and Implementing Interfaces Defining Abstract Classes

**Managing the Lifetime of Objects and Controlling Resources** Introduction to Garbage Collection Managing Resources

**Encapsulating Data and Defining Overloaded Operators** Creating and Using Properties Creating and Using Indexers Overloading Operators

**Decoupling Methods and Handling Events** Declaring and Using Delegates Using Lambda Expressions Handling Events

**Using Collections and Building Generic Types** Using Collections Creating and Using Generic Types Defining Generic Interfaces and Understanding Variance Using Generic Methods and Delegates

**Building and Enumerating Custom Collection Classes** Implementing a Custom Collection Class Adding an Enumerator to a Custom Collection Class

**Using LINQ to Query Data** Using the LINQ Extension Methods and Query Operators Building Dynamic LINQ Queries and Expressions

**Integrating Visual C# Code with Dynamic Languages and COM Components** Integrating C# Code with Ruby and Python Accessing COM Components from C#

**10267:**

- Exploring Microsoft ASP.NET Web Applications in Microsoft Visual Studio 2010
- Introduction to the .NET Framework
- Overview of ASP.NET
- Overview of the Lab Application

- Creating Web Applications by Using Microsoft Visual Studio 2010 and

**Microsoft .NET?Based Languages**

- Choosing a Programming Language
  - Overview of Visual Studio 2010
  - Creating a Simple Web Application
  
  - Creating a Microsoft ASP.NET Web Form
  - Creating Web Forms
  - Adding and Configuring Server Controls in a Web Form
  
  - Adding Functionality to a Microsoft ASP.NET Web Form
  - Working with Code-Behind Files
  - Handling Server Control Events
  - Creating Classes and Components by Using Visual Studio 2010
  - Handling Page Events
  
  - Implementing Master Pages and User Controls
  - Creating Master Pages
  - Adding User Controls to an ASP.NET Web Form
  
  - Validating User Input
  - Overview of User Input Validation
  - ASP.NET Validation Controls
  - Validating Web Forms
  
  - Troubleshooting Microsoft ASP.NET Web Applications
  - Debugging in ASP.NET
  - Tracing in ASP.NET
  
  - Managing Data in an Microsoft ASP.NET 4.0 Web Application
  - Overview of ADO.NET
  - Connecting to a Database
  - Managing Data
  
  - Managing Data Access Tasks by Using LINQ
  - Overview of LINQ
  - Managing XML Data by Using LINQ to XML
  - Managing SQL Data by Using LINQ to SQL and LINQ to Entities
  
  - Managing Data by Using Microsoft ASP.NET Dynamic Data
  - Overview of ASP.NET Dynamic Data
  - Applying ASP.NET Dynamic Data
  - Customizing ASP.NET Dynamic Data Applications
- Creating a Microsoft ASP.NET Ajax-enabled Web Forms**

**ApplicationIntroduction to AjaxCreating an ASP.NET Ajax Application by Using the Ajax Features for ASP.NETExtending an ASP.NET Web Forms Application by Using the Ajax Control Toolkit**

**Consuming Microsoft Windows Communication Foundation ServicesOverview of Windows Communication Foundation ServicesCalling Windows Communication Foundation ServicesWorking with WCF Data Services**

**Managing State in Web ApplicationsState ManagementASP.NET ProfilesASP.NET Caching**

**Configuring and Deploying a Microsoft ASP.NET Web ApplicationConfiguring an ASP.NET Web ApplicationDeploying an ASP.NET Web Application**

**Securing a Microsoft ASP.NET Web ApplicationOverview of Web Application SecurityDeclaratively Configuring Authentication and AuthorizationWorking Programmatically with Authentication and Authorization**

**Implementing Advanced Technologies Supported by Microsoft Visual Studio 2010 for Web DevelopmentWorking with the ASP.NET MVC 2 FrameworkWorking with Silverlight 4**

**10264:**

**- Overview of Web Application Design  
- Overview of IIS 7.0Overview of ASP.NET 4.0Introduction to the MVC FrameworkOverview of the Request Life Cycle**

**- Designing a Web ApplicationWeb Applications: Case StudiesWeb Application Design EssentialsGuidelines for Determining When to Use Web Forms and MVCVisual Studio 2010 Tools and Technologies for Web Application Design**

**Developing MVC ModelsExploring Ways to Create MVC ModelsCreating a Data Repository**

**Developing MVC ControllersImplementing MVC ControllersCreating Action Methods**

**Developing MVC ViewsImplementing MVC ViewsImplementing Strongly-Typed MVC ViewsImplementing Partial MVC Views**

**Designing for DiscoverabilityOverview of Search Engine OptimizationCreating the Robots and Sitemap FilesUsing ASP.NET Routing**

**Writing Server-Side Code for Web Forms**  
**Overview of the Structure of a Web Application**  
**Controlling ViewState**  
**Localizing a Web Application**  
**Persisting Data on a Web Forms Page**  
**Validating User Input**

**Optimizing Data Management for Web Forms**  
**Managing Data by Using LINQ to Entities**  
**Using Data Source Controls**  
**Using ASP.NET Dynamic Data**

**Ensuring Quality by Debugging, Unit Testing, and Refactoring**  
**Debugging and Refactoring Code**  
**Unit Testing Code**  
**Processing Unhandled Exceptions**  
**Test Driven Development**

**Securing a Web Application**  
**Configuring Authentication**  
**Configuring ASP.NET Membership**  
**Managing Authorization by Using ASP.NET Roles**

**Applying Master Pages and CSS**  
**Applying Master Pages**  
**Applying CSS, Skins, and Themes**

**Developing Client Side Scripts and Services**  
**Developing Client-Side Scripts**  
**Implementing AJAX**  
**Creating Services**

**Implementing Advanced AJAX in a Web Application**  
**Implementing Ajax in ASP.NET MVC Pages**  
**Using Microsoft Ajax**  
**Implementing Ajax in ASP.NET MVC Pages**  
**Using jQuery**  
**Working With jQuery and Ajax Events**

**Deploying a Web Application**  
**Overview of Web Application Deployments**  
**Overview of Web Site Deployments**  
**Deploying AdventureWorks**

**Developing a Web Application by Using Silverlight**  
**Introduction to Rich Internet Applications**  
**Overview of Silverlight**  
**Creating a Silverlight Application**

**Prüfungs-Vorbereitungs-Workshop-Tag**

**10263:**

- **Service-Oriented Architecture**
- **What Is SOA?**
- **The Benefits of SOA**  
**Scenarios and Standards**  
**Introduction to WCF**

- **Getting Started with Microsoft Windows Communication Foundation Development**

- **Service Contract and Implementation**  
**Hosting WCF Services**  
**WCF Behaviors**  
**Consuming WCF Services**

**Hosting Microsoft Windows Communication Foundation Services**  
**WCF Service Hosts**  
**Service Host**  
**Hosting WCF Services in Windows Services**  
**IIS, WAS, and AppFabric**  
**Configuring WCF Hosts**  
**Service Hosting Best Practices**

**Defining and Implementing Microsoft Windows Communication Foundation Contracts**  
What Is a Contract? Contract Types Messaging Patterns Designing WCF Contracts

**Endpoints and Behaviors** Multiple Endpoints and Interoperability WCF Discovery WCF Default Endpoints Instancing and Concurrency Reliability

**Testing and Troubleshooting Microsoft Windows Communication Foundation Services** Errors and Symptoms WCF Faults Debugging and Diagnostics Tools Runtime Governance

**Security** Introduction to Application Security The WCF Security Model Transport and Message Security Authentication and Authorization Claim-Based Identity

**Introduction to Advanced Microsoft Windows Communication Foundation Topics** The Asynchronous Invocation Pattern Extending WCF Routing Workflow Services

**Prüfungs-Vorbereitungs-Workshop-Tag**

**10265:**

- Architecture and Data Access Technologies
- Data Access Technologies
- Data Access Scenarios

- Building Entity Data Models
- Introduction to Entity Data Models
- Modifying the Entity Data Model
- Customizing the Entity Data Model

- Querying Entity Data
- Retrieving Data by Using LINQ to Entities Retrieving Data by Using Entity SQL Retrieving Data by Using EntityClient Provider Retrieving Data by Using Stored Procedures Unit Testing Your Data Access Code

**Creating, Updating, and Deleting Entity Data** Understanding Change Tracking in the Entity Framework Modifying Data in an Entity Data Model

**Handling Multi-User Scenarios by Using Object Services** Handling Concurrency in the Entity Framework Transactional Support in the Entity Framework

**Building Optimized Solutions by Using Object Services** The Stages of Query Execution Change Tracking and Object Materialization Using Compiled Queries Using Design-Time Generated Entity Framework Views Monitoring Performance Performing Asynchronous Data Modifications

**Customizing Entities and Building Custom Entity Classes  
Overriding Generated Classes  
Using Templates to Customize Entities  
Creating and Using Custom Entity Classes**

**Using POCO Classes with the Entity Framework  
Requirements for POCO Classes  
POCO Classes and Lazy Loading  
POCO Classes and Change Tracking  
Extending Entity Types**

**Building an N-Tier Solution by Using the Entity Framework  
Designing an N-Tier Solution  
Defining Operations and Implementing Data Transport Structures  
Protecting Data and Operations**

**Handling Updates in an N-Tier Solution by Using the Entity Framework  
Tracking Entities and Persisting Changes  
Managing Exceptions in an N-Tier Solution**

**Building Occasionally Connected Solutions  
Offline Data Caching by Using XML  
Using the Sync Framework**

**Querying Data by Using WCF Data Services  
Introduction to WCF Data Services  
Creating a WCF Data Service  
Consuming a WCF Data Service  
Protecting Data and Operations in a WCF Data Service**

**Updating Data by Using WCF Data Services  
Creating, Updating, and Deleting Data in a WCF Data Service  
Preventing Unauthorized Updates and Improving Performance  
Using WCF Data Services with Nonrelational Data**

**Using ADO.NET  
Retrieving and Modifying Data by Using ADO.NET Commands  
Retrieving and Modifying Data by Using DataSets  
Managing Transactions and Concurrency in Multiuser Scenarios**

**Using LINQ to SQL  
Implementing a Logical Data Model by Using LINQ to SQL  
Managing Performance and Handling Concurrency**

**Prüfungs-Vorbereitungs-Workshop-Tag**

**Beitrag**

**Der Teilnehmerbeitrag versteht sich rein netto. Das ZFI ist (gemäss MwSt-Gesetz) nicht Mehrwertsteuerpflichtig und erhebt somit keine MwSt. Bei länger als einen Monat dauernden Lehrgängen ist die Zahlung des Teilnehmerbeitrages in mehreren Raten möglich (pro rata temporis).**