

## Programming with Microsoft ADO.NET

### Introduction

This course will teach developers to build data-centric applications and Web services with Microsoft ADO.NET, Microsoft SQL Server 2000, and the Microsoft .NET Framework.

### Pre-Requisites

The course assumes that students have the following skills:

- Understanding of relational database concepts: table, row, column, primary keys, foreign keys, constraints, and views
- Data query and modification experience, including experience with SELECT, INSERT, UPDATE, and DELETE commands
- Exposure to XML documents, style sheets, and schemas
- Experience with Visual Basic .NET, Visual Basic for Applications, or previous versions of Visual Basic
- Experience building user interfaces, including Web applications or Microsoft Windows applications

### Outcomes

After completing this course, students will be able to:

- Describe data-centric applications, ADO.NET architecture, and ADO.NET and XML.
- Connect to SQL Server and other data sources.
- Perform connected database operations including executing SELECT commands, database definition commands, dynamic SQL commands, and commands that return data from a SQL Server database in XML.
- Build a DataSet schema, populate it with data, and modify the data programmatically.
- Build a DataSet from an existing data source.
- Use XML techniques while working with DataSets, including mapping tables and columns, creating XSD schemas, building strongly typed DataSets, and interacting with XML DataDocuments.
- Build a Web service that uses ADO.NET to query and update a data source.
- Troubleshoot errors within an ADO.NET application.

### Course Details

Course code: MS 2389

Duration: 3 days

Starting time: 9.00 am

Finishing time: 4.30 pm

Lunch and refreshments are provided.

### Booking guidelines

Contact our Learning Consultants on 1300 86 87246 and we will assist you with your booking.



Learning Solutions

( 1300 86 87246

1300 TO TRAIN

# Course Outline

## Module 1: Data-Centric Applications and ADO.NET

The following topics are covered in this module:

- Design of Data-Centric Applications
- ADO.NET Architecture
- ADO.NET and XML

After completing this module, students will be able to:

- Give examples of storage options.
- Diagram the architecture of data-centric applications.
- Choose a connected, disconnected, or mixed environment based on application requirements.
- Use the System.Data namespaces in applications.
- Diagram the ADO.NET object model.
- Analyze typical business scenarios.
- Explain how to use ADO.NET with XML.

## Module 2: Connecting to Data Sources

The following topics are covered in this module:

- Choosing a .NET Data Provider
- Defining a Connection
- Managing a Connection
- Handling Connection Exceptions
- Connection Pooling

After completing this module, students will be able to:

- Choose a .NET data provider.
- Connect to SQL Server.
- Connect to OLE DB data sources.
- Manage a connection.
- Handle common connection exceptions.
- Implement and control connection pooling.

## Module 3: Performing Connected Database Operations

The following topics are covered in this module:

- Working in a Connected Environment
- Building Command Objects
- Executing Commands That Return a Single Value
- Executing Commands That Return Rows
- Executing Commands That Do Not Return Rows
- Using Transactions

After completing this module, students will be able to:

- Build a command object.
- Execute a command that returns a single value.
- Execute a command that returns a set of rows, and process the result.
- Execute a command that defines database structure and permissions by using the data definition language (DDL) and data control language (DCL).
- Execute a command that modifies data.
- Use transactions.

## Module 4: Building DataSets

The following topics are covered in this module:

- Working in a Disconnected Environment
- Building DataSets and DataTables
- Binding and Saving a DataSet
- Defining Data Relationships
- Modifying Data in a DataTable
- Sorting and Filtering

After completing this module, students will be able to:

- Describe the disconnected environment.
- Build a DataSet and a DataTable.
- Bind a DataSet to a DataGrid.
- Open and save a DataSet.
- Define a data relationship.

- Modify data in a DataTable.
- Find and select rows in a DataTable.
- Sort and filter a DataTable by using a DataView.

## Module 5: Reading and Writing XML with ADO.NET

The following topics are covered in this module:

- Creating XSD Schemas
- Loading Schemas and Data into DataSets
- Writing XML from a DataSet

After completing this module, students will be able to:

- Generate an XSD schema from a DataSet by using graphical tools.
- Save a DataSet structure to an XSD schema file.
- Create and populate a DataSet from an XSD schema and XML data.
- Save DataSet data as XML.
- Write and load changes by using a DiffGram

## Module 6: Building DataSets from Existing Data Sources

The following topics are covered in this module:

- Configuring a DataAdapter to Retrieve Information
- Populating a DataSet Using a DataAdapter
- Configuring a DataAdapter to Update the Underlying Data Source
- Persisting Changes to a Data Source
- How to Handle Conflicts.

After completing this module, students will be able to:

- Configure a DataAdapter to retrieve information.
- Populate a DataSet by using a DataAdapter.
- Configure a DataAdapter to modify information.
- Persist data changes to a data source.
- Manage data conflicts

# Course Outline



## Ø **Module 7: Building and Consuming a Web Service That Uses ADO.NET**

The following topic is covered in this module:

- **Building and Consuming a Web Service That Returns Data.**

After completing this module, students will be able to:

- **Build a Web service.**
- **Consume a Web service in a client application.**
- **Troubleshoot errors in an ADO.NET application.**