

Course 80304A:

Development II in Microsoft Dynamics AX 2012

About this Course

This two-day instructor-led course introduces students to the tools available in Microsoft Dynamics AX 2012 development environment.

Audience Profile

The intended audience is experienced systems consultants typically working for a Microsoft Dynamics partner that is selling, consulting, implementing, and supporting Microsoft Dynamics AX 2012.

At Course Completion

After completing this course, students will be able to:

- Identify key features of developing with X++.
- Describe the basic foundation of object-oriented programming.
- Use the development tools available within Microsoft Dynamics AX 2012.
- Create object and data models from existing application elements by using the Reverse Engineering tool.
- Use best practices to instill good programming habits.
- Declare and use extended data types for variables.
- Use the various operators available in X++.
- Control program flow using conditional statements in X++.
- Repetitively call the same blocks of code by using Loop statements.
- Use standard functions that are built in to the application.
- Use output commands to display data and messages to the user.
- Use the classes within Microsoft Dynamics AX 2012 X++ development.
- Control access to methods using Access Control Method Modifiers.
- Extend a class using the concept of inheritance.
- Describe the differences between an object and a class.
- Initialize variables in the appropriate place according to scoping rules.
- Call methods within the same class.
- Use the different method types available.
- Describe the similarities and differences between tables and classes.
- Use the eventing publisher and subscriber model when modifying code in the application.
- Retrieve data from the database using a select statement.
- Create, update and delete data in the database.
- Use and build queries using kernel classes.
- Examine the exception handling mechanism in Microsoft Dynamics AX.
- Use the Try, Catch, and Retry statements.
- Throw an exception from code.
- Identify and create code used to handle optimistic concurrency exceptions.
- Set permissions on application elements.
- Design and create security policies.
- Secure unsafe Application Programming Interfaces (APIs) using the Code Access Security framework.
- Authenticate data returned from display methods.

Course Outline
Module 1: Introduction to X++ This module introduces the students to the characteristics of X++.
Lessons

- Introduction
- Characteristics of X++
- Development Tools

- Reverse Engineering
- Best Practices

Lab : Print to the ScreenLab : Debug the JobLab : Create a Data ModelLab : Create an XML Developer Document

After completing this module, students will be able to:

- Identify key features of developing with X++.
- Describe the basic foundation of object-oriented programming.
- Use the development tools available within Microsoft Dynamics AX 2012.
- Create object and data models from existing application elements by using the Reverse Engineering tool.
- Use best practices to instill good programming habits.

Module 2: X++ Control Statements This module explains how to use control statements in X++. **Lessons**

- Introduction
- Introduction to Variables
- Operators
- Conditional Statements
- Loops
- Built-in Functions
- Communication Tools

Lab : Create a Times Table Using a While LoopLab : Create a Times Table Using a Do...while LoopLab : Create a Times Table Using a for StatementLab : Create a YesNo BoxLab : Create a Infolog TreeLab : Create a Dialog BoxLab : Use X++ Control Statements

After completing this module, students will be able to:

- Declare and use extended data types for variables.
- Use the various operators available in X++.
- Control program flow using conditional statements in X++.
- Repetitively call the same blocks of code by using Loop statements.
- Use standard functions that are built in to the application
- Use output commands to display data and messages to the user.

Module 3: Classes and Objects

This module discusses how to use classes and objects within Microsoft Dynamics AX 2012.

Lessons

- Introduction
- Classes
- Method Access Control
- Inheritance
- Objects
- Scoping and Parameters in X++
- Methods
- Referencing Object Methods
- Method Types
- Table as Classes

- Eventing

Lab : Create a New ClassLab : Allow Access to MethodsLab : Instantiating a ClassLab : Use Method ParametersLab : Create a Run MethodLab : Create a Calculator Class

After completing this module, students will be able to:

- Use the classes within Microsoft Dynamics AX 2012 X++ development
- Control access to methods using Access Control Method Modifiers
- Extend a class using the concept of inheritance
- Describe the differences between an object and a class
- Initialize variables in the appropriate place according to scoping rules
- Call methods within the same class
- Use the different method types available
- Describe the similarities and differences between tables and classes
- Use the eventing publisher and subscriber model when modifying code in the application.

Module 4: Accessing the Database This module explains how to develop modifications that interact with the database.**Lessons**

- Introduction
- Retrieving Data
- Data Manipulation
- Queries

Lab : Retrieving DataLab : UpdateLab : Create Query Using X++

After completing this module, students will be able to:

- Retrieve data from the database using a select statement.
- Create, update and delete data in the database.
- Use and build queries using kernel classes.

Module 5: Exception Handling

This module discusses the mechanisms built in Microsoft Dynamics AX 2012 to help with exception handling.

Lessons

- Introduction
- Exceptions
- Try and Catch Exceptions
- Throwing Exceptions
- Optimistic Concurrency Exceptions

Lab : Handle an Exception

After completing this module, students will be able to:

- Examine the exception handling mechanism in Microsoft Dynamics AX.
- Use the Try, Catch, and Retry statements.
- Throw an exception from code.

- Identify and create code used to handle optimistic concurrency exceptions.

Module 6: Security for Developers

This module introduces some more advanced security features of Microsoft Dynamics AX 2012.

Lessons

- Introduction
- Permissions
- Security Policies
- Code Access Security
- Display Method Authorization

After completing this module, students will be able to:

- Set permissions on application elements
- Design and create security policies
- Secure unsafe Application Programming Interfaces (APIs) using the Code Access Security framework
- Authenticate data returned from display methods.

Before attending this course, students must have:

- working experience with Microsoft Dynamics AX and some knowledge of technical features of Microsoft Dynamics AX 2012 architecture and development environment.
- completed Course 80303A, Development I in Microsoft Dynamics AX 2012.