



Course Syllabus

Course 80014: Development IV in Microsoft Dynamics® AX 2009

Key Data

Course #: 80014

Number of Days: 4

Format: Instructor-Led

Certification Exams:

This course helps you prepare for the following Microsoft Certified Professional exams:

- MB6-821 - MorphX Development Solution Exam AX 2009

Certification Track:

- Development for AX 2009

This course syllabus should be used to determine whether the course is appropriate for the students, based on their current skills and technical training needs.

Course content, prices, and availability are subject to change without notice.

This four-day Development IV in Microsoft® Dynamics® AX course teaches the student advanced X++ development techniques and examines how the Microsoft Dynamics AX application is structured.

It covers both technical and application specific areas of Microsoft Dynamics AX. The technical section ensures that the student has obtained all necessary technical knowledge before progressing to the application specific section. It only covers areas that have not been included in Microsoft Dynamics AX Development classes I, II & III.

The application specific section aims at helping the student understand the more complicated processes within Microsoft Dynamics AX. The training material is useful as a reference when a refresher of the process is needed. It covers six key Microsoft Dynamics AX modules; Ledger, Trade, Inventory, Production, Project and Workflow, and goes into detail about the technical aspects of some of the main functions within each of these modules.

Audience

This course is intended for Microsoft Dynamics AX developers who are familiar with the Morph X and X++ development environment, and are looking to further their knowledge of the complete Microsoft Dynamics AX application and development environment.

At Course Completion

After completing this course, students will be able to:

- Create the base functionality for the Point-Of-Sale (POS) module
- Review the functional design of the POS project
- Review the technical design of the POS project
- Use and create number sequences
- Assign a new number using a number sequence
- Use continuous number sequences
- Format a number from a number sequence
- Use Number Pre-Allocation
- Use the Clean Up Process
- Use the Form Handler
- Use the NumberSeqReference table and methods
- Set Print Options
- Retrieve Print Options
- Use Pack and Unpack to Store Settings
- Use SysPrintOptions
- Describe the purpose of the Business Connector.
- Set up and manage the Business Connector.
- Debug code through the Business Connector.
- Describe the architecture of the Business Connector.
- Use the managed classes in the Business Connector.
- List various uses of the Business Connector.
- Reference Common Runtime Language (CLR) assemblies in the Microsoft Dynamics AX 2009 Application Object Tree (AOT).

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- Add assemblies to the Global Assembly Cache.
- Write X++ code that interacts with managed code in external applications.
- Secure CLR Interop code.
- Consume external web services from X++ code.
- Understand how and where the use of DLL's is implemented in Microsoft Dynamics AX 2009.
- Create ledger transactions using LedgerVoucher
- Create ledger transactions using a Ledger Journal
- Use SalesTableType, SalesLineType, PurchTableType, and PurchLineType.
- Post and Print Document Updates
- Post Transactions
- Use Settlements
- Use Trade Agreements
- Create and post inventory journals
- Use inventory dimensions
- Use InventSum
- Use InventMovement
- Use InventUpdate
- Identify the three main sections that make up a report.
- Add data sources to a report to define what data is displayed by the report.
- Create a report design with multiple sections and controls.
- Override system methods to control the fetch and display of data
- Know the structure and design of the project module
- Post transactions to the project module
- Make modifications to the project invoice proposal procedure
- Make modifications to the project invoice procedure
- Identify the components required prior to using workflow
- Specify which applicationmodule a workflow is applicable to using a workflow category
- Create a new workflow template
- Link tables to workflows using a workflow document
- Define what happens when the workflow is approved or denied.
- Apply a workflow to a form
- Create Event Handlers and apply them to a workflow
- Configure a workflow
- Submit a record for workflow processing
- Use the workflow processor

Prerequisites

Before attending this course, students must have completed:

- Development I in Microsoft Dynamics® AX 2009
- Development II in Microsoft Dynamics® AX 2009
- Development III in Microsoft Dynamics® AX 2009

Student Materials

The student kit includes a comprehensive workbook and other necessary materials for this class.

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Module 1: Point-of-Sale Project

This lesson outlines the development project that will be undertaken throughout the course. As the different technical and application specific areas are taught, the POS module is developed. This chapter introduces the initial basic design from which the student will build the module, and the students contribute to their own final design.

Lessons
<ul style="list-style-type: none">▪ Functional Design▪ Technical Design

After completing this module, students will be able to:

- Create the base functionality for the Point-Of-Sale (POS) module
- Review the functional design of the POS project
- Review the technical design of the POS project

Module 2: Number Sequences

Number sequences are created and used by all programmers regularly. This lesson highlights the correct way to create a new number sequence and how to use a number sequence in code. It also explores the more advanced options available.

Lessons
<ul style="list-style-type: none">▪ Assign a New Number▪ Continuous Number Sequences▪ Format a Number▪ Number Pre-Allocation▪ Clean Up Process▪ Form Handler▪ NumberSeqReference
<ul style="list-style-type: none">▪ Lab 2.1: Add Pay Id number sequence▪ Lab 2.2 Use Form Handler

After completing this module, students will be able to:

- Use and create number sequences
- Assign a new number using a number sequence
- Use continuous number sequences
- Format a number from a number sequence
- Use Number Pre-Allocation
- Use the Clean Up Process
- Use the Form Handler
- Use the NumberSeqReference table and methods

Module 3: PrintJobSettings

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Print Job Settings are used to control and retrieve settings when writing to a printer. This lesson details how to use these correctly.

Lessons
<ul style="list-style-type: none">▪ Set Print Options▪ Retrieve Print Options▪ Use of Pack and Unpack to Store Settings▪ Use of SysPrintOptions▪ Args Object
▪ Lab 3.1: Suppress Scaling Message
▪ Lab 3.2: Print Job Settings
▪ Lab 3.3: Print the receipt to the correct printer
▪ Lab 3.4: Bypass Print Options

After completing this module, students will be able to:

- Set Print Options
- Retrieve Print Options
- Use Pack and Unpack to Store Settings
- Use SysPrintOptions

Module 4: Business Connector

When using the Microsoft Dynamics AX Business Connector, other applications can access Microsoft Dynamics AX as a .NET or COM object. This means that the application can gain access to the data and business logic of Microsoft Dynamics AX, which enables the use of such applications as front ends, to Microsoft Dynamics AX.

Lessons
<ul style="list-style-type: none">▪ Business Connector Setup and Configuration▪ Business Connector Architecture
▪ Lab 4.1: Business Connector

After completing this module, students will be able to:

- Describe the purpose of the Business Connector.
- Set up and manage the Business Connector.
- Debug code through the Business Connector.
- Describe the architecture of the Business Connector.
- Use the managed classes in the Business Connector.
- List various uses of the Business Connector.

Module 5: CLR Interoperability

This lesson shows how implement external CLR assemblies within Microsoft Dynamics AX. It also shows how to consume a web service by adding it to the AOT and calling the reference from X++ code.

Lessons
<ul style="list-style-type: none">▪ Reference CLR Assemblies in the AOT▪ Adding Assemblies to the Global Assembly Cache or Client▪ Leverage CLR Managed Code Within X++ Code▪ InteropPermission Class▪ Web service references▪ Implementing a DLL
Lab 5.1: CLR Interop
Lab 5.2: Implementing DLL's

After completing this module, students will be able to:

- Reference Common Runtime Language (CLR) assemblies in the Microsoft Dynamics AX 2009 Application Object Tree (AOT).
- Add assemblies to the Global Assembly Cache.
- Write X++ code that interacts with managed code in external applications.
- Secure CLR Interop code.
- Consume external web services from X++ code.
- Understand how and where the use of DLL's is implemented in Microsoft Dynamics AX 2009.

Module 6: Ledger

This lesson helps the student understand two methods of posting transactions to the General Ledger. Due to the many varied situations that this could occur, there are a number of ways to approach this.

Lessons
<ul style="list-style-type: none">▪ LedgerVoucher▪ LedgerJournal
Lab 6.1: Create and Post a Ledger Journal
Lab 6.2: POS - End-of-day routine

After completing this module, students will be able to:

- Create ledger transactions using LedgerVoucher
- Create ledger transactions using a Ledger Journal

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Module 7: Trade

The most common area for modifications in Microsoft Dynamics AX is the sales and purchase updates. This lesson explores the FormLetter constructs, and takes the students through the code. There are also a number of journals associated with these modules and they are also discussed.

Lessons
<ul style="list-style-type: none">▪ TableType and LineType▪ Post and Print Document Updates▪ Posting Transactions▪ Settlement▪ Trade Agreement
Lab 7.1: Trade
Lab 7.2: Payment Posting and Invoice Update
Lab 7.3: Settlement

After completing this module, students will be able to:

- Use SalesTableType, SalesLineType, PurchTableType, and PurchLineType.
- Post and Print Document Updates
- Post Transactions
- Use Settlements
- Use Trade Agreements

Module 8: Inventory

This lesson explores both ways in which to post inventory transactions, and also how to manipulate inventory dimension during both posting and when retrieving data. Inventory dimensions are discussed in detail and once the student has seen examples of how to use them, they will understand the concept easily.

Lessons
<ul style="list-style-type: none">▪ Inventory Journals▪ Inventory Dimensions▪ InventSum▪ InventMovement▪ InventUpdate
Lab 8.1: On-hand Inventory on Sales Order Form
Lab 8.2: Create an ABC allocation
Lab 8.3: POS - Display inventory dimensions
Lab 8.4: POS - Display on hand inventory

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After completing this module, students will be able to:

- Create and post inventory journals
- Use inventory dimensions
- Use InventSum
- Use InventMovement
- Use InventUpdate

Module 9: Production

This lesson introduces the student to the workings of the production module. The update of production order status is introduced as well as the requirement calculation

Lessons
<ul style="list-style-type: none">▪ ProdMulti▪ ProdStatusType▪ ProdUpd▪ Scheduling
Lab 9.1: Special Instructions Using Master Planning
Lab 9.2: Special Instructions From Sales Order

After completing this module, students will be able to:

- Identify the three main sections that make up a report.
- Add data sources to a report to define what data is displayed by the report.
- Create a report design with multiple sections and controls.
- Override system methods to control the fetch and display of data

Module 10: Project Accounting

This lesson introduces the project module and some of the basic constructs within it. The student will learn to create the different types of journals, how invoice proposals are created and how invoices are posted.

Lessons
<ul style="list-style-type: none">▪ Design▪ Posting Transactions▪ Invoice Proposal▪ Invoice
Lab 10.1: Warranty Item
Lab 10.2: Place Invoice Proposal On Hold

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After completing this module, students will be able to:

- Know the structure and design of the project module
- Post transactions to the project module
- Make modifications to the project invoice proposal procedure
- Make modifications to the project invoice procedure

Module 11: Workflow

This lesson details all the processes involved in creating a configuring a new workflow. The lesson takes the student step by step through the processes with the result being a fully functioning workflow that could be used in a real-life implementation.

Lessons
<ul style="list-style-type: none">▪ Workflow Installation▪ Create a Workflow Category▪ Create a Workflow Template▪ Create a Workflow Document▪ Create a Workflow Approval▪ Enable Workflow on a Form▪ Create Event Handlers▪ Configure a Workflow▪ Code Walkthrough: Submitting a workflow▪ Code Walkthrough: Workflow Processor
Lab 11.1: Add Another Condition to the Submit Action
Lab 11.2: Enable Resubmit

After completing this module, students will be able to:

- Identify the components required prior to using workflow
- Specify which applicationmodule a workflow is applicable to using a workflow category
- Create a new workflow template
- Link tables to workflows using a workflow document
- Define what happens when the workflow is approved or denied.
- Apply a workflow to a form
- Create Event Handlers and apply them to a workflow
- Configure a workflow
- Submit a record for workflow processing
- Use the workflow processor

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