Course Outline

80436-C/Side Introduction in Microsoft Dynamics® NAV 2013

Duration: 5 days (30 hours)

Target Audience:

This course is intended for a partner that sells and implements the C/SIDE Introduction module to customers. The typical partner has an ERP background.

Prerequisites:

Before attending this course, students must have:

- Knowledge of Microsoft Dynamics NAV 2013
- Basic knowledge of programming concepts and programming languages.

Topics Covered:

- Module 1: Microsoft Dynamics NAV Development Environment
  - Basic Objects in Microsoft Dynamics NAV 2013
  - Object Designer Fundamentals
  - Team Development Features
  - The Physical and Logical Database
    - Lab : Designing and Running an Object

    After completing this module, students will be able to:
    - Present the basic object types in Microsoft Dynamics NAV 2013.
    - Describe fundamental aspects of Microsoft Dynamics NAV Development Environment. This includes the UI, application objects, and basic metadata concepts.
    - Explain the physical and logical database structure.
    - Explain the features for multi-developer environments.
- Module 2: Tables
  - Tables Fundamentals
  - Primary and Secondary Keys
  - Table Relationships
  - Special Table Fields
    - Lab : Create a Table

    After completing this module, students will be able to:
    - Explain the concepts of tables and table components.
    - Examine the concept behind primary and secondary keys, and explain how to set them.
    - Create a simple table with primary and secondary keys, and add data to the table.

- Review the concept of table relation.
- Set table relations with a filter and condition.
- Describe the special table fields.
- Use special table fields to improve table features.

➢ Module 3: Pages

- Page Fundamentals
- Page Designer
- Page Types and Characteristics
  - Lab : Create a Card and a List Page

  After completing this module, students will be able to:
  - Explain the concepts of pages and page components.
  - Describe Page Designer and Action Designer.
  - Create a simple page and add basic controls to the page.
  - Provide an overview of different page types and their characteristics.
  - Discuss best practices in designing pages.
  - Create a Card page, add a container, FastTabs, and fields.
  - Create a List page and link it to the Card page.
  - Create a main page, a Part page, and link the two pages.

➢ Module 4: Introduction to C/AL Programming

- C/AL Programming
- Intrinsic Data Types
- Identifiers, Variables and Syntax
- Variable Scope
  - Lab : Investigate Data Types

  After completing this module, students will be able to:
  - Describe the concepts and basic use of C/AL code elements.
  - Describe the concepts of data types, simple data types and complex data types.
  - Explain the concepts of identifiers, variables, and syntax.
  - Explain the syntax of identifiers.
  - Explain the scope of variables.
  - Explain the initialization of variables.
  - Create a simple codeunit to demonstrate how to define variables, assign data types, and investigate several default values that are initialized for several data types.

➢ Module 5: Assignment Statements and Expressions

- Assignment Statements
- The Syntax of Statements
- Automatic Type Conversions
- Use Assignment Statements and the Symbol Menu
- Expressions, Evaluations, Terms, and Operators

- The String Operator
- Function Calls in Expressions
- Numeric Expressions
- Arithmetic Operators
- Relational and Logical Expressions
- Relational Expressions for Comparison
- Relational Expressions for Set Inclusion
- Logical Expressions
  - Lab : Use Logical and Relational Expressions in a Page

  After completing this module, students will be able to:
    - Explain the concepts of assignment, statement, and assignment statement.
    - Describe the syntax of statements and introduce the statement separator.
    - Describe automatic type conversions for string, numeric, and other data types.
    - Use assignment statements and the Symbol Menu.
    - Explain the concepts of expressions, terms, and operators.
    - Describe the syntax of an expression.
    - Describe the string operator.
    - Use the string operator.
    - Describe the MAXSTRLEN and the COPYSTR functions.
    - Use the MAXSTRLEN and the COPYSTR functions in an expression.
    - Define numeric expressions, arithmetic operators, and operator precedence.
    - Describe the arithmetic operators, and provide examples.
    - Use the arithmetic operators and examine the operator precedence.
    - Define relational and logical operators and expressions.
    - Describe the use of relational expressions for comparison.
    - Describe the use of relational expressions for set inclusion.
    - Describe the use of logical expressions.
    - Use logical and relational expressions in a page.

➢ Module 6: C/AL Statements
- Conditional Statement and Boolean Expressions
- The IF Statement
- The EXIT Statement
- The CASE Statement
- Compound Statements and Comments
- The Syntax of Compound Statements
- Compound Statements by Using Nested IF Statements
- The Syntax of Comments
- Practice: Nested IF

- Arrays
- The Syntax of Arrays
- The Power of Arrays
- Strings as Arrays of Characters
- Repetitive Statements
- The WITH Statement
  - Lab : Use Conditional and Compound Statements

  After completing this module, students will be able to:
    - Define conditional statements and Boolean expressions.
    - Describe the IF statement, the IF-THEN, and IF-THEN-ELSE syntax.
    - Describe the EXIT statement and code indentation.
    - Describe the CASE statement and the syntax of the CASE statement.
    - Define compound statements and comments.
    - Describe the syntax of compound statements with BEGIN and END.
    - Understand the concepts of nested IF statements and the rule of correct indentation.
    - Describe the syntax of comments.
    - Use the IF, EXIT, CASE, and compound statements in a page.
    - Test knowledge about C/AL statements.
    - Define arrays and describe the components of arrays.
    - Describe the syntax of arrays.
    - Explain the power of arrays.
    - Describe how to use strings as arrays of characters.
    - Introduce repetitive statements that are available in C/AL.
    - Use arrays and repetitive statements in a page.
    - Describe the WITH statement, record variables, and the syntax of the WITH statement.

➢ Module 7: C/AL Functions
- Functions and Parameters
- Review Built-in Functions
- Data Access Functions
- Sorting and Filtering Functions
- Data Manipulation Functions
- Working with Fields
- Using Interaction Functions
- Other Common C/AL Functions
- Create Custom Functions
- Local Functions, Variables and the EXIT Statement
  - Lab : Create Custom Functions

  After completing this module, students will be able to:
    - Explain the concepts of functions and parameters.

- Explain the C/AL Symbol Menu.
- Describe the use and syntax of data access, filtering, and manipulation functions.
- Describe the use and syntax of user interaction functions.
- Describe the use and syntax of string functions.
- Describe the use and syntax of system functions.
- Describe the use and syntax of date functions.
- Describe the use and syntax of number functions.
- Describe the use and syntax of array functions.
- Describe the use and syntax of several other important functions.
- Provide an overview of the benefits of creating custom functions.
- Explain the concepts of local functions and local variables.
- Create custom functions in a page and call the functions from Actions.

➢ Module 8: Reports

- Report Fundamentals
- Report Design Process
- Design the Data Model
- Create a Data Model
- Design the Layout
- The Request Page Designer
- Design the Request Options Page
- Grouping and Totaling
- Add Advanced Features
  - Lab : Create a Basic Report

  After completing this module, students will be able to:
  - Explain the concepts of reports and report components.
  - Provide an overview of different report types and their characteristics.
  - Describe the difference between the logical and the visual design of reports and introduce Report Designer.
  - Describe the logical design of a report.
  - Create the data model for a new report by defining data items in the Report Dataset Designer.
  - Describe the visual design of a report and introduce Microsoft Visual Studio Report Designer.
  - Design the report layout.
  - Introduce Request Page Designer.
  - Design the Request Options page.
  - Explain the concepts of grouping and totaling in a report.
  - Create a grouping and totaling for a report.
  - Add advanced features to a report.

- Module 9: XMLports
  - XMLport Fundamentals
  - Design XMLports
  - Importing and Exporting Plain Text
  - Using XMLports in C/AL Code
    - Lab : Create an XMLport to Export XML DataLab : Create an XMLport to Export Variable Text

    After completing this module, students will be able to:
    - Describe the fundamentals of an XMLport and its components.
    - Review how to design XMLports.
    - Explain the Request Page functionality.
    - Describe the process of using XMLports from C/AL code.
    - Create XMLports for export and import with XML format.
    - Create XMLports for export and import with fixed and a variable text format.
- Module 10: Codeunits
  - Codeunit Fundamentals
  - Design Codeunits
  - Use Codeunits
  - SMTP

    After completing this module, students will be able to:
    - Explain the concepts of codeunits.
    - Provide an overview of designing codeunits.
    - Provide an overview by using codeunits.
    - Define variables and functions in a codeunit.
    - Use the SMTP Mail codeunit.
- Module 11: Microsoft .NET Framework Interoperability
  - The DotNetDataType
  - Datatype Mapping and Assignment
  - .NET Framework Interoperability C/AL functions
  - Streaming
    - Lab : Use a Dictionary Object

    After completing this module, students will be able to:
    - Explain the .NET Interoperability features.
    - Describe the concept of constructors.
    - Communicate between client-side and server-side objects.
    - Describe how to respond to events that are raised by .NET objects.
    - Examine mapping between C/AL and .NET data types.
    - Review the most important C/AL functions for managing .NET objects.
    - Use arrays, collections, and enumerations.
    - Explain how to stream data between C/AL and .NET objects

- Module 12: Queries
  - Query Design
  - Accessing Queries from C/AL
  - Advanced Query Concepts
    - Lab : Using a Query from a ChartLab : Using Queries in C/AL

    After completing this module, students will be able to:
    - Present the Query Designer and its features.
    - Explain the principles of the query design process.
    - Show how to select, join, filter, aggregate, and order data.
    - Show how to access queries from C/AL code.
    - Explain how to export data from queries.