
MICROSOFT DYNAMICS NAV – COURSE OUTLINE

1) MICROSOFT DYNAMICS NAV – C/SIDE INTRODUCTION

Module 1: Microsoft Dynamics NAV Development Environment

This module explains fundamental aspects of Microsoft Dynamics NAV Development Environment.

Lessons

- Basic Objects in Microsoft Dynamics NAV 2013
- Object Designer Fundamentals
- Team Development Features
- The Physical and Logical Database

Lab : Designing and Running an Object

- Accessing the Object Designer
- Creating 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

This module explains the concepts and the use of tables and table components.

Lessons

- Tables Fundamentals
- Primary and Secondary Keys



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- 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

This module explains the concepts of pages and page components.

Lessons

- Page Fundamentals
- Page Designer
- Page Types and Characteristics

Lab : Create a Card and a List Page

- Create a Card page for the Course table
- Create a List page for the Course table

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.



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- 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

This module explains the concepts and use of C/AL code elements.

Lessons

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

Lab : Investigate Data Types

- Data Types
- Display the Variables

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

This module explains the concepts of assignments, statements, and assignment statements.



Lessons

- 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

- Create a New 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.



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- 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

This module explains concepts of conditional statement and the Boolean expression. Lessons

- 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.



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- 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 This module explains C/AL functions.

Lessons

- 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

- Create Functions
- Add Action to Page
- Add Code to Functions

After completing this module, students will be able to:



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- 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

This module explains the concept of reports and report components.

Lessons

- 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

- Build the report

After completing this module, students will be able to:



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- 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 This module explains the fundamentals of XMLports and its components.

Lessons

- XMLport Fundamentals
- Design XMLports
- Importing and Exporting Plain Text
- Using XMLports in C/AL Code

Lab : Create an XMLport to Export XML Data

- Create an XMLport for export to the XML document

Lab : Create an XMLport to Export Variable Text

- Create an XMLport for Export to the Variable Text Document

After completing this module, students will be able to:

- Describe the fundamentals of an XMLport and its components.
- Review how to design XMLports.



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- 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 This module explains the concepts of codeunits.

Lessons

- 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 This module explains the .NET Interoperability features.

Lessons

- The DotNetDataType
- Datatype Mapping and Assignment
- .NET Framework Interoperability C/AL functions
- Streaming

Lab : Use a Dictionary Object

- Declare and Instantiate a Dictionary
- Populate the dictionary



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

This module introduces the query object type by explaining various use cases for queries: using queries in charts, in OData web services, and accessing them programmatically from C/AL.

Lessons

- Query Design
- Accessing Queries from C/AL
- Advanced Query Concepts

Lab : Using a Query from a Chart

- Creating a query
- Creating a chart
- Adding the chart to the Role Center

Lab : Using Queries in C/AL

- Create a codeunit which uses a query

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.

AWANSOFT TECHNOLOGY SDN BHD

C-5-6 Plaza Mont Kiara, 2 Jalan Kiara, 50480 Kuala Lumpur, Malaysia

Tel: +6 017 555 2100

Fax: +6 03 6201 3882

Email: awansoft@awansoft.biz

URL: www.awansoft.biz



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- Show how to access queries from C/AL code.
 - Explain how to export data from queries.
 - Conduct production upgrade and go live.