**凱風電腦有限公司 |Gallant Computer Company Ltd.**
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# (80436A) –C/Side Introduction in Microsoft Dynamics NAV 2013

## OBJECTIVE

This three-day instructor-led course focuses on the capabilities and features of the Microsoft Dynamics NAV 2013 Development Environment. It explains the basic development concepts in Microsoft Dynamics NAV 2013, and provides an overview of the C/AL programming language and various object types. It also introduces new development capabilities, including reporting, queries, and .NET Framework interoperability.

## COURSE TOPICS

**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

**Module 2: Tables**

- Tables Fundamentals

- Primary and Secondary Keys

- Table Relationships

- Special Table Fields

**Module 3: Pages**

- Page Fundamentals

- Page Designer

- Page Types and Characteristics

**Module 4: Introduction to C/AL Programming**

- C/AL Programming

- Intrinsic Data Types

- Identifiers, Variables and Syntax

- Variable Scope

**Module 5: Assignment Statements and Expressions**

- Assignment Statements

- The Syntax of Statements

- Automatic Type Conversions

- Use Assignment Statements and the Symbol Menu

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- 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

## 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

## 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

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- Other Common C/AL Functions

- Create Custom Functions

- Local Functions, Variables and the EXIT Statement

## 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

## Module 9: XML ports

- XML port Fundamentals

- Design XML ports

- Importing and Exporting Plain Text

- Using XML ports in C/AL Code

## Module 10: Code units

- Code unit Fundamentals

- Design Code units

- Use Code units

- SMTP

## Module 11: Microsoft .NET Framework Interoperability

- The Dot Net Data Type

- Datatype Mapping and Assignment

- .NET Framework Interoperability C/AL functions

- Streaming

## Module 12: Queries

- Query Design

- Accessing Queries from C/AL

- Advanced Query Concepts

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After completing this course, 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.

- 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 relations.

- Set table relations with a filter and condition.

- Describe special table fields.

- Use special table fields to improve table features.

- 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, Fast Tabs, and fields.

- Create a List page and link it to the Card page.

- Create a main page and a Part page, and link the two pages.

- 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 code unit to show how to define variables, assign data types, and investigate several default values that are initialized for several data types.

- Explain the concepts of assignment, statement, and assignment statements.

- 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.

- Understand the concepts of expressions, terms, and operators.

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- 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 how to use relational expressions for comparison.

- Describe how to use relational expressions for set inclusion.

- Describe how to use logical expressions.

- Use logical and relational expressions in a page.

- 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.

- 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.

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- 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.

- 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.

- Describe the fundamentals of an XML port and its components.

- Review how to design XML ports.

- Explain the Request page functionality.

- Describe how to use XML ports from C/AL code.

- Create XML ports for export and import with XML format.

- Create XML ports for export and import with a fixed and a variable text format.

- Explain the concepts of code units.

- Provide an overview of designing code units.

- Provide an overview by using code units.

- Define variables and functions in a code unit.

- Use the SMTP Mail code unit.

- Explain the .NET Interoperability features.

- Describe the concept of constructors.

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- 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.

- 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

- Demonstrate how to access queries from C/AL code

- Explain how to export data from queries.

## PREREQUISITES

Before attending this course, students must have:

- Knowledge of Microsoft Dynamics NAV 2013

- Basic knowledge of programming concepts and programming languages. s

## TRAINING APPROACH

This course includes lectures, course notes, exercises and hands-on practice.

## COURSE DURATION

24 Hours (in 3 days)

## CERTIFICATION COMPLETION

A certificate of completion is provided for all trainees attending the course