

NX

CUSTOMIZATION

Online Training

- Flexible Timings
- Basic to Advanced
- Programming included



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CADVertex.com



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CADVertex Solutions

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NX Open Programming

Language: VB.NET or CSharp

Training Structure

Module 1: VB.Net or CSharp In-depth

Module 2: NX Open - UI, Document, Sketcher, Drawing, Part and Assembly automation.

Module 3: Block UI Styler, uFunc, Knowledge Fusion, Advanced NXOpen & Projects.

Fees Check website: <https://www.cadvertex.com/training.htm>

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Features:

- ✓ Personal coaching - no recorded videos.
- ✓ Flexible timings.
- ✓ Weekday batches.
- ✓ Weekend batches.
- ✓ CSharp or VB.Net programming - indepth training included.
- ✓ Unlimited support after training - at no extra cost!
- ✓ 5 industry projects – listed on next page.
- ✓ Resume Preparation.
- ✓ Interview Preparation.
- ✓ Job referrals.

Training Highlights



Online Training



Flexible Timings



Trainer: 25 yrs Exp.



Duration: 6 Wks



1 Hour Daily



Basic to Advanced



10 Industry Projs



Certificate



Support after Training



CuttingEdge Tech

List of Projects

1. Geometric Calculator.
2. Batch Processor.
3. Automatic Drawing Views.
4. Parametric Shaft.
5. Assembly Cost Estimation.

Module 1: VB.Net or CSharp In-depth

1. Installing Visual Studio

- Installing Visual Studio Community version.
- Setting the default language.
- Customizing the layout.
- Solution Explorer and the Error window.

2. Introduction to Programming

- Selecting a project template.
- Setting up user interaction and collecting inputs.
- Mathematical libraries, calculations and display outputs.
- Using the .Net Math library functions.
- Various files and their meaning in the project structure.
- Separating source code from the executable.

3. Creating a Windows Forms Application

- Setting dialog box properties.
- Toolbox and the Properties window.
- Adding controls: Button, TextBox, Label, Checkbox, RadioButton.
- Adding images to PictureBox and other controls.
- Aligning text and images on controls.
- Composite controls: ListBox and ComboBox.
- Adjusting various properties for each type of control.
- Variable types - Double, Integer, and String.
- Acquiring user input from textboxes into variables.

4. File Open dialog and File Save dialogs

- Creating basic, compound and composite file filters.
- Dialog properties and startup paths.
- Reading single and multiple files from a file dialog.
- Opening various type of files using a file dialog.

5. Folder Selection Dialog

- Getting files from folder.
- Filtering file types in a folder dialog.
- IO.Directory functions.
- Anchoring controls to the Form.

6. Message Boxes

- Configuring single line and multiline messages.
- Button and icon selection.
- Using If-Then-Else statements.
- Checking message box responses.

7. Arrays

- Filling arrays and reading array elements.
- Filling ListBoxes with array elements.
- ForEach loop.

8. Functions and Subroutines

- Arguments in functions.
- Return types in functions.
- ByRef or out arguments.
- Function overloading.

9. Object Oriented Programming

- Creating a class.
- Adding member functions.
- Static and non-static methods.
- Class constructor and object variables.
- Public and Private methods.
- Adding member variables.
- Encapsulation.
- Polymorphism and function overloading.
- DLL and EXE, differences and usage.

10. Multi-Form Projects

- Adding Forms to a project.
- Form objects and invoking Forms.
- Exchanging data between Forms.

Module 2: NX Open: UI, Document, Sketcher, Drawing, Part & Assembly Automation

11. NX Open Architecture and UI Automation

- ❖ Connect to NX.
- ❖ Loading and unloading a program.
- ❖ Interacting using the NX Listing Window.
- ❖ Accessing and modifying NX Preferences.

12. NX File Handling

- ❖ Create new NX Parts.
- ❖ Open and Close NX Parts.
- ❖ Save and SaveAs and Export NX Parts.
- ❖ Access Parts in the session.
- ❖ Work Part and Set Display Part.
- ❖ Close all Parts in the Session.

13. 2D Sketches

- ❖ Create 2D sketch using points, lines, arcs, and circles.
- ❖ Absolute and relative points.
- ❖ Create single line and multiline text or notes.
- ❖ Set note position and lettering style.

14. More NX UI Elements

- ❖ User Interaction using NX message boxes.
- ❖ Using NX Input boxes.
- ❖ Picking points using the Selection manager.
- ❖ User interaction using mouse inputs.

15. NX Drawing Views

- ❖ Create standard views on drawing sheets
- ❖ Using the selection manager to interactively create drawing views on the sheet.
- ❖ Creating base view and projection views.

16. NX Parametric Parts

- ❖ Create and control parametric part in NX.
- ❖ Expression table.
- ❖ Searching expressions by name and extracting values.
- ❖ **Industry Project** - Update parametric shaft with keyway.

17. NX Assemblies

- ❖ Traverse the NX assembly structure.
- ❖ Creating NX assembly alias.
- ❖ Root component and children components.
- ❖ Extracting the name and cost of assembly components.
- ❖ **Industry Project** - Assembly Cost Estimation.

Module 3: Block UI Styler, uFunc and Knowledge Fusion, Advanced NXOpen, Projects

18. Architecture of the Block UI

- ❖ What is a Block UI?
- ❖ What is Block UI Styler.
- ❖ Which language does a Block UI use.
- ❖ How to use the Block UI dialogs in NX.

19. Block UI Styler Basics

- ❖ Where and how to use Visual Studio.
- ❖ Using the Block UI Values in NXOpen.
- ❖ Label and Bitmap blocks.
- ❖ Double, Integer inputs and the String block.
- ❖ Toggles and Enums.
- ❖ Radio button and dropdown lists.
- ❖ Point picker and folder selector.
- ❖ Listbox Flooding.

20. Drawing in 2D using the Block UI

- ❖ Create 2D shapes using points, lines, and arcs.
- ❖ Absolute and relative points.
- ❖ Create single line and multiline text or notes.
- ❖ Set note position and lettering style.

21. NX Parametric Parts using Block UI

- ❖ Create and control parametric part in NX.
- ❖ Expression table.
- ❖ Searching expressions by name and extracting values.
- ❖ **Industry Project** - Update parametric shaft with keyway.

22. NX Assemblies using Block UI

- ❖ Traverse the NX assembly structure.
- ❖ Creating NX assembly alias.
- ❖ Root component and children components.
- ❖ Extracting the name and cost of assembly components.
- ❖ **Industry Project** - Assembly Cost Estimation.

23. uFunc File Handling

- ❖ Part Tag identifiers.
- ❖ Create new NX files.
- ❖ Open, Close, Save and SaveAs NX files.
- ❖ Ask parts and active part in the session.
- ❖ Activate files in the session.
- ❖ Close all files in the session.

24. Knowledge Fusion

- ❖ Knowledge Fusion Architecture.
- ❖ Setting Knowledge Fusion preferences.
- ❖ DFA Manager and search path.
- ❖ DFA File sorting and filtering.
- ❖ DFA File syntax checking and loading.

25. Writing Knowledge Fusion Programs

- ❖ DFA File format.
- ❖ DFA File header.
- ❖ Define a class.
- ❖ Points and lines.
- ❖ Creating 2D shapes.

26. Creating 2D Geometry with Knowledge Fusion

- ❖ Number parameters.
- ❖ Adding properties to geometry.
- ❖ 2D Vectors.
- ❖ Arc - directions, and angles.

27. Creating 3D objects in Knowledge Fusion

- ❖ Simple block using frame and vectors.
- ❖ Redefine origin and vector directions.
- ❖ Block using frame and points.
- ❖ More primitives – cylinders, cones, and spheres.
- ❖ Boolean operations, defining tools and targets.
- ❖ Inline Boolean operations.

28. Lists in Knowledge Fusion

- ❖ Creating composite lists.
- ❖ Print values and demand values.
- ❖ Named and positional members.
- ❖ Flattening lists, min, max, check empty lists.
- ❖ List operations, sort, reverse, and join lists.

29. Parametric Parts using Knowledge Fusion

- ❖ Reading and modifying NX expressions.
- ❖ **Industry Project** – Create a parametric shaft with keyway using KF.

30. NX Journal Recording

- ❖ Journal Recording - steps and precautions.
- ❖ Integrating journal code with Visual Studio.
- ❖ Customize the NX Ribbon UI:
 - Adding new tabs.
 - Adding new buttons.
 - Customizing buttons.
 - Running NXOpen and BlockUI Styler apps from buttons.

Other eBooks and Training Programs from CADVertex:

- ❖ CATIA Automation: VB.Net or CSharp or Python
- ❖ SolidWorks Automation: VB.Net or CSharp or Python
- ❖ Solid Edge Automation: VB.Net or CSharp or Python
- ❖ Inventor Automation: VB.Net or CSharp or Python

- ❖ NX Open: VB.Net or CSharp with Win Forms
- ❖ NX Open: VB.Net or CSharp with Block UI Styler
- ❖ Knowledge Fusion
- ❖ Knowledge Fusion with Block UI Styler

- ❖ [Revit Automation using CSharp.Net + Dynamo](#)
- ❖ [Tekla Automation using CSharp.Net](#)

- ❖ cMayoCAD: Learn to build a new CAD program from scratch using a Geometric Modeling Kernel and CSharp

- ❖ CATIA Automation with Python and Machine Learning
- ❖ Solid Edge Automation with Python + Machine Learning
- ❖ SolidWorks Automation with Python + Machine Learning
- ❖ Inventor Automation with Python + Machine Learning

- ❖ Fast track course in Python with Machine Learning for CSharp experts

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