

## CADVertex Solutions

A-16 . Whispering Wind . Pashan-Baner Link Road . Pashan . Pune . 411021  
[www.CADVertex.com](http://www.CADVertex.com) [info@cadvertex.com](mailto:info@cadvertex.com) Phone :+91 9890611694

# Tekla Open API

Language: **CSharp**

## Training Structure

Module 1: **CSharp Programming**  
 Module 2: **Tekla Open API**

## Features:

- ✓ Personal coaching - no recorded videos.
- ✓ Flexible timings, weekend batches are also conducted.
- ✓ CSharp programming – in depth training included!
- ✓ Unlimited support after training - at no extra cost!

## Training Highlights



Online Training



Flexible Timings



Trainer: 25 yrs Exp.



Duration: 6 Wks



1 Hour Daily



Basic to Advanced



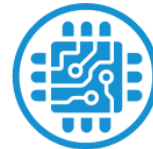
10 Industry Projs



Certificate



Support after Training



CuttingEdge Tech

## **Module 1: CSharp Programming**

### **1. Installing Visual Studio**

- Installing Visual Studio Community version.
- Setting the default language.
- Customizing the layout.
- Solution Explorer, Toolbox and the Properties windows.

### **2. Introduction to Programming**

- Selecting a project template.
- Setting up user interaction and collecting inputs.
- Variable types - Double, Integer, and String.
- Acquiring user input from textboxes into variables.
- 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.
- 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.

### **4. Arrays and Loops**

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

### **5. Functions and Subroutines**

- Arguments.
- Return Types.
- Return Values in Functions.
- Function Overloading.

### **6. Multi-Form Projects**

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

## **7. Object Oriented Programming**

- Creating a class.
- Adding member functions.
- Public and Private methods.
- Adding member variables.
- Encapsulation.
- Polymorphism.

## **Module 2: Tekla Open API**

### **8. Tekla Open API Overview**

- Connect to Tekla Structures.
- Tekla model and Connection Status.
- Tekla interface elements - message boxes and prompts.
- Model name and path.

### **9. Modeling API**

- Using Tekla Geometry 3D and creating aliases.
- Creating beam and column objects.
- Beam geometry, profile, material and class.
- Inserting the beam and committing changes.
- Picker class, picking single points and objects.
- Filtering objects in the model.
- Selecting multiple objects in the model.
- Object enumerator and ArrayList of model objects.
- Using the foreach loop to enumerate model objects.

### **10. Object Creation and Modification**

- Creating contour plate.
- Multiple point picking.
- Contour points
- Cut plane, axes and orientation.

### **11. Drawing Handling**

- Creating Drawings of models.
- Accessing current drawing and sheets.
- Access sheet and placing views.
- Inserting single part drawings.

### **12. User Defined Properties**

- Setting, retrieving properties.
- Inspecting and exporting UDAs.

### 13. Debugging Techniques

- Debugging techniques in Tekla apps.
- Adding breakpoints and inspecting values.
- Determine source of error.
- Troubleshooting and fix errors in the code.

### 14. Excel Automation and Integration

- Integrating Tekla API with Excel.
  - Reading data from Excel and creating objects in Tekla.
  - Writing out Tekla model data to Excel sheets.
  - Invoking Excel from CSharp.
  - Creating new workbook.
  - Connecting to Excel.
  - Connecting to existing worksheets.
  - Accessing range and cells.
  - Writing and reading values from cells.
  - Formulas and results.
  - Formatting cells - font and layout.
  - Excel Macro recording and integration.
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- ❖ [Industry Project](#) - Writing Tekla Information to Excel.
  - ❖ [Industry Project](#) - Reading from Excel into Tekla.

## 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](#)
- ❖ [Tekla Automation using CSharp.Net](#)
  
- ❖ cMayoCAD: Learn to build a new CAD program from scratch using a Geometric Modeling Kernel and CSharp
  
- ❖ Machine Learning for Engineers with Python
  
- ❖ CATIA Automation with Python and Machine Learning
- ❖ NX Automation and Machine Learning with Python
- ❖ 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 VB.Net experts
- ❖ Fast track course in Python with Machine Learning for CSharp experts



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**Phone & Chat**

**+ 91 9890611694**

**eMail**

[info@CADVertex.com](mailto:info@CADVertex.com)

**Website**

[www.CADVertex.com](http://www.CADVertex.com)