

SOLIDWORKS API Fundamentals Using .NET (4 days)

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Objective

Students will learn the three fundamental skills of SOLIDWORKS API programming: 1) basic programming in VBA and .NET, 2) Using the API Help, 3) Understanding the SOLIDWORKS API Object Model. After the course, students should feel comfortable researching API calls and using those calls to create macros from scratch.

1. Day One

- a. Course introduction
- b. Comparison of VBA and .NET
- c. .NET Essentials
 - i. Variables
 - ii. Arrays and collections
 - iii. Conditionals
 - iv. Loops
 - v. User forms
 - vi. Error handling
 - vii. Traversing files
- d. SOLIDWORKS API introduction
 - i. Macro recorder
 - ii. API Help
 - iii. SOLIDWORKS API Object model
 - iv. Macro shortcuts

2. Day Two

- a. Review of Day One
- b. General document functionality
 - i. System and document settings
 - ii. Opening and saving documents
 - iii. Configurations
 - iv. Custom properties
 - v. Preselection and programmatic selection
- c. Creating a macro from scratch

- 3. Day Three
 - a. Working with parts
 - i. Sketch automation
 - ii. Features
 - 1. Creating features
 - 2. Editing features
 - 3. Traversing features
 - b. Traversing geometry and topology
 - i. Boundary Representation (BREP) model
 - ii. Persistent IDs

- 4. Day Four (Topics will be chosen by attendees)
 - a. Assembly automation
 - i. Adding components
 - ii. Adding mates
 - iii. Traversing components
 - iv. Editing components in context
 - b. Drawing automation
 - i. Adding views
 - ii. BOM tables and other tables
 - iii. Adding and modifying annotations
 - iv. Traversing drawing entities
 - c. Advanced topics
 - i. Using the SOLIDWORKS API with Microsoft Excel
 - ii. Event notifications
 - iii. PropertyManager pages
 - d. Addin creation using CADSharp's addin template