

SolidWorks API Fundamentals

Instructor: Keith Rice

Objective

Students will learn the three fundamental skills of SolidWorks API programming: 1) Programming using Visual Basic Applications, 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. Overview of macros, add-ins, and stand-alones
- b. VBA Essentials
 - i. Course introduction
 - ii. Variables
 - iii. Arrays and collections
 - iv. Conditionals
 - v. Loops
 - vi. Built-in functions
 - vii. Modular programming
 - viii. User forms
 - ix. Error handling
 - x. Traversing files

2. Day Two

- a. SolidWorks API introduction
 - i. Macro recorder
 - ii. API Help
 - iii. SolidWorks API Object Model
 - iv. Creating a macro from scratch
 - v. Creating a macro shortcut
 - vi. SolidWorks API error handling
- b. General document functionality
 - i. System and document settings
 - ii. Opening and saving documents
 - iii. Configurations
 - iv. Custom properties
 - v. Preselection and programmatic selection

3. Day Three

- a. Working with parts
 - i. Sketches
 - 1. Creating a sketch
 - 2. Dimensions and relations
 - 3. Traversing sketch entities
 - ii. Features
 - 1. Creating features
 - 2. Editing features
 - 3. Traversing features

4. Day Four

- a. Traversing geometry and topology
 - i. Boundary Representation (BREP) model
 - ii. Persistent IDs
- b. As chosen by attendees and as time allows:**
 - i. Assembly automation
 - 1. Adding components
 - 2. Adding mates
 - 3. Traversing components
 - 4. Editing components in context
 - ii. Drawing automation
 - 1. Adding views
 - 2. BOM tables and other tables
 - 3. Adding and modifying annotations
 - 4. Traversing drawing entities
 - iii. Advanced topics
 - 1. Using the SolidWorks API with Microsoft Excel
 - 2. Event notifications
 - 3. Temporary bodies
 - 4. PropertyManager pages
 - 5. Macro features
 - 6. Equation-triggered macros