



## SOLIDWORKS 2007: ESSENTIALS

**Objective:** SolidWorks Essentials teaches you how to use the SolidWorks mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

**Prerequisites:** Mechanical design experience; experience with the Windows™ operating system.

**Duration:** 4-Day (32 hours)

### COURSE OUTLINE

The topics covered in this course are:

#### Lesson 1: Introduction

- About This Course
- What is the SolidWorks Software?
- Design Intent
- File References
- Opening Files
- The SolidWorks User Interface
- Taskpane

#### Lesson 2: Introduction to Sketching

- 2D Sketching
- Stages in the Process
- Saving Files
- What are We Going to Sketch?
- Sketching
- Sketch Entities
- Basic Sketching
- Rules That Govern Sketches
- Design Intent
- Sketch Relations
- Dimensions
- Sketch Fillets
- Extrude

#### Lesson 3: Basic Part Modeling

- Basic Modeling
- Terminology
- Choosing the Best Profile
- Choosing the Sketch Plane
- Details of the Part
- Boss Feature
- Sketching on a Planar Face
- Using the Hole Wizard
- Cut Feature
- View Options
- Filletting
- Detailing Basics
- Drawing Views
- Center Marks
- Model Dimensions
- Changing Parameters

#### Lesson 4: Modeling a Casting or Forging

- Case Study: Ratchet
- Design Intent
- Boss Feature with Draft
- Symmetry in the Sketch
- Sketching Inside the Model
- View Options
- Keyboard Shortcuts
- Using Model Edges in a Sketch
- Creating Trimmed Sketch Geometry
- Using Copy and Paste
- Editing Features

#### ASIA EDUCATIONAL ACADEMY 亚洲国际教育语言学院

No: 22-2, Lorong Batu Nilam 4B, Bandar Bukit Tinggi, 41200 Klang, Selangor D.E, Malaysia  
Tel: +603-3324 9870 | Fax: +603-3324 9806 | Email: aeamalaysia@gmail.com | Website: www.e-asiaworld.com

#### PETALING JAYA

30A, Jalan PJS 1/46,  
46150 Petaling Jaya,  
Selangor.  
Tel: + 60 3 – 7783 6866  
Fax: + 60 3 – 7781 1185

#### PENANG

92A, Jalan Perai Jaya 2,  
13700 Prai,  
Penang  
Tel : + 60 4 – 399 5571  
Fax : + 60 4 – 399 5572

#### MELAKA

PT 1626,  
Kws. Perindustrian Krubong,  
Mukim Krubong, 75250 Melaka.  
Tel: + 60 6 – 337 3039  
Fax: + 60 6 – 334 4008

#### JOHOR

11-A, Jalan Jati 2, Taman Nusa  
Bestari Jaya Bandar Nusa Jaya,  
81300 Skudai, Johor  
Tel: + 60 7 – 512 7978  
Fax: + 60 7 – 512 2162



### Lesson 5: Patterning

- Why Use Patterns?
- Reference Geometry
- Linear Pattern
- Circular Patterns
- Mirror Patterns
- Using Pattern Seed Only
- Sketch Driven Patterns

### Lesson 6: Revolved Features

- Case Study: Handwheel
- Design Intent
- Revolved Features
- Building the Rim
- Building the Spoke
- Edit Material
- Mass Properties
- COSMOSXpress
- Using the Wizard

### Lesson 7: Shelling and Ribs

- Shelling and Ribs
- Analyzing and Adding Draft
- Other Options for Draft
- Shelling
- Ribs
- Full Round Fillets
- Thin Features

### Lesson 8: Editing: Repairs

- Part Editing
- Editing Topics
- Check Sketch for Feature
- FilletXpert
- DraftXpert

### Lesson 9: Editing: Design Changes

- Part Editing
- Design Changes
- Information From a Model
- Rebuilding Tools
- Sketch Contours
- Adding Textures

### Lesson 10: Configurations of Parts

- Configurations
- Using Configurations
- Editing Parts that Have Configurations
- Design Library

### Lesson 11: Design Tables and Equations

- Design Tables
- Link Values
- Equations
- Design Tables
- Existing Design Tables
- Modeling Strategies for Configurations
- More About Making Drawings
- In the Advanced Course...

### Lesson 12: Bottom-Up Assembly Modeling

- Case Study: Universal Joint
- Bottom-Up Assembly
- Creating a New Assembly
- Position of the First Component
- FeatureManager Design Tree and Symbols
- Adding Components
- Using Part Configurations in Assemblies
- Creating Copies of Instances
- Component Hiding and Transparency
- Component Properties
- Sub-assemblies
- Smart Mates
- Inserting Sub-assemblies
- Multiple Mate Mode

#### ASIA EDUCATIONAL ACADEMY 亚洲国际教育语言学院

No: 22-2, Lorong Batu Nilam 4B, Bandar Bukit Tinggi, 41200 Klang, Selangor D.E, Malaysia  
Tel: +603-3324 9870 | Fax: +603-3324 9806 | Email: aeamalaysia@gmail.com | Website: www.e-asiaworld.com

#### PETALING JAYA

30A, Jalan PJS 1/46,  
46150 Petaling Jaya,  
Selangor.  
Tel: + 60 3 – 7783 6866  
Fax: + 60 3 – 7781 1185

#### PENANG

92A, Jalan Perai Jaya 2,  
13700 Prai,  
Penang  
Tel : + 60 4 – 399 5571  
Fax : + 60 4 – 399 5572

#### MELAKA

PT 1626,  
Kws. Perindustrian Krubong,  
Mukim Krubong, 75250 Melaka.  
Tel: + 60 6 – 337 3039  
Fax: + 60 6 – 334 4008

#### JOHOR

11-A, Jalan Jati 2, Taman Nusa  
Bestari Jaya Bandar Nusa Jaya,  
81300 Skudai, Johor  
Tel: + 60 7 – 512 7978  
Fax: + 60 7 – 512 2162



### Lesson 13: Using Assemblies

- Using Assemblies
- Analyzing the Assembly
- Changing the Values of Dimensions
- Using Physical Dynamics
- Physical Simulation
- Exploded Assemblies
- Explode Line Sketch
- Assembly Drawings
- In the Drawings Course...

### Appendix :

Options Settings ,

Document Templates

#### ASIA EDUCATIONAL ACADEMY 亚洲国际教育语言学院

No: 22-2, Lorong Batu Nilam 4B, Bandar Bukit Tinggi, 41200 Klang, Selangor D.E, Malaysia  
Tel: +603-3324 9870 | Fax: +603-3324 9806 | Email: aeamalaysia@gmail.com | Website: www.e-asiaworld.com

#### **PETALING JAYA**

30A, Jalan PJS 1/46,  
46150 Petaling Jaya,  
Selangor.  
Tel: + 60 3 – 7783 6866  
Fax: + 60 3 – 7781 1185

#### **PENANG**

92A, Jalan Perai Jaya 2,  
13700 Prai,  
Penang  
Tel : + 60 4 – 399 5571  
Fax : + 60 4 – 399 5572

#### **MELAKA**

PT 1626,  
Kws. Perindustrian Krubong,  
Mukim Krubong, 75250 Melaka.  
Tel: + 60 6 – 337 3039  
Fax: + 60 6 – 334 4008

#### **JOHOR**

11-A, Jalan Jati 2, Taman Nusa  
Bestari Jaya Bandar Nusa Jaya,  
81300 Skudai, Johor  
Tel: + 60 7 – 512 7978  
Fax: + 60 7 – 512 2162