

Table of Contents

Dedication	iii
Preface	xxi
Chapter 1: Introduction to SOLIDWORKS 2016	
Introduction to SOLIDWORKS 2016	1-2
Part Mode	1-2
Assembly Mode	1-3
Drawing Mode	1-3
System Requirements	1-4
Getting Started with SOLIDWORKS	1-4
Menu Bar and SOLIDWORKS Menus	1-7
CommandManager	1-8
Part Mode CommandManagers	1-8
Assembly Mode CommandManagers	1-10
Drawing Mode CommandManagers	1-11
Customized CommandManager	1-11
Toolbar	1-12
Pop-up Toolbar	1-12
View (Heads-Up) Toolbar	1-12
Shortcut Bar	1-13
Mouse Gestures	1-13
Dimensioning Standards and Units	1-13
Important Terms and Their Definitions	1-14
Feature-based Modeling	1-14
Parametric Modeling	1-14
Bidirectional Associativity	1-14
Windows Functionality	1-16
SWIFT Technology	1-16
Geometric Relations	1-16
Blocks	1-18
Library Feature	1-18
Design Table	1-18
Equations	1-18
Collision Detection	1-18
What's Wrong Functionality	1-18
2D Command Line Emulator	1-18
SimulationXpress	1-19
Physical Dynamics	1-19
Physical Simulation	1-19
Seed Feature	1-19
FeatureManager Design Tree	1-20
Absorbed Features	1-20
Child Features	1-20
Dependent Features	1-20

Auto-Backup Option	1-20
Selecting Hidden Entities	1-21
Hot Keys	1-21
Color Scheme	1-22
Self-Evaluation Test	1-23

Chapter 2: Drawing Sketches for Solid Models

The Sketching Environment	2-2
Starting a New Session of SOLIDWORKS 2016	2-3
Task Panes	2-3
SOLIDWORKS Resources Task Pane	2-3
Design Library Task Pane	2-4
File Explorer Task Pane	2-4
View Palette Task Pane	2-4
Appearances, Scenes, and Decals Task Pane	2-5
Custom Properties Task Pane	2-5
SOLIDWORKS Forum Task Pane	2-5
Starting a New Document in SOLIDWORKS 2016	2-6
Part	2-6
Assembly	2-6
Drawing	2-7
Understanding the Sketching Environment	2-7
Setting the Document Options	2-9
Modifying the Drafting Standards	2-9
Modifying the Linear and Angular Units	2-10
Modifying the Snap and Grid Settings	2-11
Learning Sketcher Terms	2-12
Origin	2-12
Inferencing Lines	2-13
Select Tool	2-13
Invert Selection Tool	2-14
Drawing Lines	2-15
Orientation Rollout	2-15
Options Rollout	2-16
Drawing Continuous Lines	2-16
Drawing Individual Lines	2-17
Line Cursor Parameters	2-18
Drawing Tangent or Normal Arcs Using the Line Tool	2-19
Drawing Construction Lines or Centerlines	2-20
Drawing Midpoint Line	2-20
Drawing the Lines of Infinite Length	2-20
Drawing Circles	2-21
Drawing Circles by Defining their Center Points	2-21
Drawing Circles by Defining Three Points	2-22
Drawing Construction Circles	2-23
Drawing Arcs	2-23

Drawing Tangent/Normal Arcs	2-23
Drawing Centerpoint Arcs	2-25
Drawing 3 Point Arcs	2-26
Drawing Rectangles	2-26
Drawing Rectangles by Specifying their Corners	2-27
Drawing Rectangles by Specifying the Center and a Corner	2-27
Drawing Rectangles at an Angle	2-28
Drawing Centerpoint Rectangles at an Angle	2-28
Drawing Parallelograms	2-29
Drawing Polygons	2-30
Drawing Splines	2-31
Drawing Slots	2-32
Creating a Straight Slot	2-32
Creating a Centerpoint Straight Slot	2-33
Creating a 3 Point Arc Slot	2-33
Creating a Centerpoint Arc Slot	2-34
Placing Sketched Points	2-34
Drawing Ellipses	2-35
Drawing Elliptical Arcs	2-36
Drawing Parabolic Curves	2-37
Drawing Conic Curves	2-38
Drawing Display Tools	2-39
Zoom to Fit	2-39
Zoom to Area	2-39
Zoom In/Out	2-40
Zoom to Selection	2-40
Pan	2-40
Previous View	2-40
Redraw	2-41
Deleting Sketched Entities	2-41
Tutorial 1	2-41
Tutorial 2	2-46
Tutorial 3	2-50
Tutorial 4	2-54
Self-Evaluation Test	2-61
Review Questions	2-61
Exercise 1	2-62
Exercise 2	2-63
Exercise 3	2-63
Exercise 4	2-64

Chapter 3: Editing and Modifying Sketches

Editing Sketched Entities	3-2
Trimming Sketched Entities	3-2
Extending Sketched Entities	3-5
Convert Entities	3-6
Intersection Curves	3-7

Enhanced

Filleting Sketched Entities	3-7
Chamfering Sketched Entities	3-9
Offsetting Sketched Entities	3-10
Mirroring Sketched Entities	3-12
Mirroring Entities Dynamically	3-13
Moving Sketched Entities	3-14
Rotating Sketched Entities	3-15
Scaling Sketched Entities	3-17
Stretching Sketched Entities	3-18
Copying and Pasting Sketched Entities	3-19
Creating Patterns	3-19
Creating Linear Sketch Patterns	3-20
Creating Circular Sketch Patterns	3-23
Editing Patterns	3-25
Writing Text in the Sketching Environment	3-26
Modifying Sketched Entities	3-27
Modifying a Sketched Line	3-27
Modifying a Sketched Circle	3-27
Modifying a Sketched Arc	3-27
Modifying a Sketched Polygon	3-27
Modifying a Spline	3-28
Modifying the Coordinates of a Point	3-30
Modifying an Ellipse or an Elliptical Arc	3-30
Modifying a Parabola	3-30
Dynamically Modifying and Copying Sketched Entities	3-30
Splitting Sketched Entities	3-31
Tutorial 1	3-31
Tutorial 2	3-36
Tutorial 3	3-40
Self-Evaluation Test	3-45
Review Questions	3-45
Exercise 1	3-46
Exercise 2	3-47
Exercise 3	3-48
Exercise 4	3-48
Exercise 5	3-49
Exercise 6	3-49

Chapter 4: Adding Relations and Dimensions to Sketches

Applying Geometric Relations to Sketches	4-2
Applying Relations Using the Add Relations PropertyManager	4-2
Automatic Relations	4-7
Design Intent	4-8
Dimensioning a Sketch	4-9
Horizontal/Vertical Dimensioning	4-11
Aligned Dimensioning	4-23
Angular Dimensioning	4-24

Diameter Dimensioning	4-25
Radius Dimensioning	4-26
Linear Diameter Dimensioning	4-26
Ordinate Dimensioning	4-27
Concept of a Fully Defined Sketch	4-28
Fully Defined	4-29
Overdefined	4-29
Underdefined	4-29
Dangling	4-29
No Solution Found	4-30
Invalid Solution Found	4-30
Sketch Dimension or Relation Status	4-30
Deleting Overdefined Dimensions	4-31
Displaying and Deleting Relations	4-33
Opening an Existing File	4-36
Address Bar	4-36
File name	4-36
Type Drop-down List	4-36
Open Read-Only	4-37
Mode Drop-down List	4-37
Configurations	4-38
References	4-38
Quick Filter	4-38
Display States Drop-down List	4-39
Tutorial 1	4-39
Tutorial 2	4-48
Tutorial 3	4-54
Self-Evaluation Test	4-63
Review Questions	4-63
Exercise 1	4-64
Exercise 2	4-65
Exercise 3	4-65

Chapter 5: Advanced Dimensioning Techniques and Base Feature Options

Advanced Dimensioning Techniques	5-2
Fully Defining the Sketches	5-2
Dimensioning the True Length of an Arc	5-4
Measuring Distances and Viewing Section Properties	5-4
Measuring Distances	5-5
Determining the Section Properties of Closed Sketches	5-7
Creating Base Features by Extruding Sketches	5-9
Creating Solid Extruded Features	5-9
Creating Thin Extruded Features	5-12
Creating Base Features by Revolving Sketches	5-14
Creating Solid Revolved Features	5-15

Creating Thin Revolved Features	5-16
Determining the Mass Properties of Parts	5-18
Dynamically Rotating the View of a Model	5-19
Rotating the View Freely in 3D Space	5-19
Rotating the View around a Selected Vertex, Edge, or Face	5-19
Modifying the View Orientation	5-20
Changing the Orientation Using the Reference Triad	5-22
Restoring the Previous View	5-22
Displaying the Drawing Area in Viewports	5-22
Displaying the Drawing Area in Two Horizontal Viewports	5-23
Displaying the Drawing Area in Two Vertical Viewports	5-23
Displaying the Drawing Area in Four Viewports	5-24
Display Modes of a Model	5-24
Wireframe	5-25
Hidden Lines Visible	5-25
Hidden Lines Removed	5-25
Shaded With Edges	5-25
Shaded	5-25
Additional Display Modes	5-25
Shadows in Shaded Mode	5-25
Perspective	5-26
Assigning Materials and Textures to Models	5-26
Assigning Materials to a Model	5-27
Changing the Appearance of the Model	5-27
Editing the Appearances	5-29
Tutorial 1	5-30
Tutorial 2	5-34
Tutorial 3	5-39
Self-Evaluation Test	5-43
Review Questions	5-44
Exercise 1	5-45
Exercise 2	5-46
Exercise 3	5-46

Chapter 6: Creating Reference Geometries

Importance of Sketching Planes	6-2
Creating Reference Geometry	6-2
Reference Planes	6-3
Creating New Planes	6-4
Creating Reference Axes	6-10
Creating Reference Points	6-13
Creating Reference Coordinate Systems	6-15
Creating Center of Mass	6-15
Advanced Boss/Base Options	6-16
Modeling Using the Contour Selection Method	6-23
Creating Cut Features	6-27
Creating Extruded Cuts	6-27

Creating Multiple Bodies in the Cut Feature	6-30
Creating Revolved Cuts	6-32
Concept of the Feature Scope	6-33
Tutorial 1	6-33
Tutorial 2	6-38
Tutorial 3	6-42
Self-Evaluation Test	6-49
Review Questions	6-49
Exercise 1	6-50
Exercise 2	6-52
Exercise 3	6-53

Chapter 7: Advanced Modeling Tools-I

Advanced Modeling Tools	7-2
Creating Simple Holes	7-2
Creating Standard Holes Using the Hole Wizard	7-3
Creating Threads	7-9
Adding External Cosmetic Threads	7-12
Creating Fillets	7-13
Selection Options	7-27
Creating Fillets Using the FilletXpert	7-30
Creating Chamfers	7-31
Creating Shell Features	7-34
Creating Wrap Features	7-37
Tutorial 1	7-39
Tutorial 2	7-46
Tutorial 3	7-53
Self-Evaluation Test	7-61
Review Questions	7-62
Exercise 1	7-63
Exercise 2	7-64
Exercise 3	7-65

Chapter 8: Advanced Modeling Tools-II

Advanced Modeling Tools	8-2
Creating Mirror Features	8-2
Creating Linear Pattern Features	8-6
Creating Circular Pattern Features	8-12
Creating Sketch Driven Patterns	8-14
Creating Curve Driven Patterns	8-15
Creating Table Driven Patterns	8-17
Creating Fill Patterns	8-19
Creating Variable Patterns	8-23
Creating Rib Features	8-24
Displaying the Section View of a Model	8-29
Changing the Display States	8-31

Tutorial 1	8-32
Tutorial 2	8-39
Tutorial 3	8-44
Self-Evaluation Test	8-54
Review Questions	8-54
Exercise 1	8-56
Exercise 2	8-57
Exercise 3	8-58
Exercise 4	8-59

Chapter 9: Editing Features

Editing the Features of a Model	9-2
Editing Using the Edit Feature Tool	9-2
Editing Sketches of the Sketch-based Features	9-3
Editing the Sketch Plane Using the Edit Sketch Plane Tool	9-3
Editing Using the Instant3D Tool	9-4
Editing Features and Sketches by Using the Cut, Copy, and Paste Options	9-7
Cutting, Copying, and Pasting Features and Sketches from One Document to the Other	9-8
Copying Features Using Drag and Drop	9-8
Deleting Features	9-9
Deleting Bodies	9-10
Suppressing Features	9-11
Unsuppressing the Suppressed Features	9-11
Unsuppressing Features with Dependents	9-11
Hiding Bodies	9-11
Moving and Copying Bodies	9-12
Reordering the Features	9-14
Rolling Back the Feature	9-15
Renaming Features	9-16
Creating Folders in the FeatureManager Design Tree	9-16
What's Wrong Functionality	9-16
Tutorial 1	9-18
Tutorial 2	9-24
Tutorial 3	9-28
Self-Evaluation Test	9-34
Review Questions	9-35
Exercise 1	9-35
Exercise 2	9-37

Chapter 10: Advanced Modeling Tools-III

Advanced Modeling Tools	10-2
Creating Sweep Features	10-2
Creating Cut-Sweep Features	10-12
Creating Loft Features	10-13

Adding a Section to a Loft Feature	10-21
Creating Lofted Cuts	10-22
Creating 3D Sketches	10-23
Creating Grid Systems	10-25
Editing 3D Sketches	10-26
Creating Curves	10-26
Extruding a 3D Sketch	10-36
Creating Draft Features	10-37
Tutorial 1	10-41
Tutorial 2	10-44
Tutorial 3	10-47
Self-Evaluation Test	10-51
Review Questions	10-52
Exercise 1	10-53
Exercise 2	10-54
Exercise 3	10-55

Chapter 11: Advanced Modeling Tools-IV

Advanced Modeling Tools	11-2
Creating Dome Features	11-2
Creating Indents	11-5
Creating Deform Features	11-8
Creating Flex Features	11-12
Creating Fastening Features	11-16
Creating the Mounting Boss	11-16
Creating Snap Hooks	11-19
Creating Snap Hook Grooves	11-21
Creating Vents	11-22
Creating a Lip/Groove Feature	11-26
Creating Freeform Features	11-30
Face Settings Rollout	11-32
Control Curves Rollout	11-32
Control Points Rollout	11-32
Display Rollout	11-33
Dimensioning a Part Using DimXpert	11-34
Specifying the Datum	11-34
Pop-up Toolbar	11-35
Adding Dimensions	11-36
Specifying the Location of a Feature	11-37
Adding Geometric Tolerance to the Features	11-38
Collecting Pattern Features	11-40
Adding Dimensions Automatically	11-40
Tutorial 1	11-41
Tutorial 2	11-45
Tutorial 3	11-48
Tutorial 4	11-51
Self-Evaluation Test	11-57

Review Questions	11-58
Exercise 1	11-59

Chapter 12: Assembly Modeling-I

Assembly Modeling	12-2
Types of Assembly Design Approach	12-2
Creating Bottom-up Assemblies	12-3
Placing Components in the Assembly Document	12-4
Assembling Components <i>Enhanced</i>	12-8
Creating Top-down Assemblies	12-27
Creating Components in the Top-down Assembly	12-27
Moving Individual Components	12-28
Moving Individual Components by Dragging	12-28
Moving Individual Components Using the Move Component Tool	12-28
Rotating Individual Components	12-29
Rotating Individual Components by Dragging	12-29
Rotating Individual Components Using the Rotate Component Tool	12-30
Moving and Rotating Individual Components Using the Triad	12-30
Assembly Visualization	12-32
Tutorial 1	12-33
Tutorial 2	12-44
Self-Evaluation Test	12-49
Review Questions	12-49
Exercise 1	12-50
Exercise 2	12-53
Exercise 3	12-57

Chapter 13: Assembly Modeling-II

Advanced Assembly Mates	13-2
Applying the Profile Center Mate	13-2
Applying the Symmetric Mate	13-3
Applying the Width Mate	13-3
Applying the Path Mate	13-4
Applying the Distance Mate	13-6
Applying the Angle Mate	13-6
Applying the Linear/Linear Coupler Mate	13-6
Mechanical Mates	13-6
Applying the Cam Mate	13-6
Applying the Slot Mate	13-7
Applying the Hinge Mate	13-8
Applying the Gear Mate	13-9
Applying the Rack Pinion Mate	13-10
Applying the Screw Mate	13-10
Applying the Universal Joint Mate	13-11
Creating Sub-assemblies	13-11
Bottom-up Sub-assembly Design Approach	13-11

Top-down Sub-assembly Design Approach	13-12
Inserting a New Sub-assembly	13-12
Deleting Components and Sub-assemblies	13-12
Editing Assembly Mates	13-13
Replacing Mated Entities	13-13
Editing Components	13-14
Editing Sub-assemblies	13-15
Dissolving Sub-assemblies	13-16
Replacing Components	13-16
Creating Patterns of Components in an Assembly	13-18
Pattern Driven Component Pattern	13-18
Local Pattern	13-20
Copying and Mirroring Components	13-21
Copying a Component along with Mates	13-22
Copying Multiple Components New	13-23
Simplifying Assemblies using the Visibility Options	13-23
Hiding Components	13-24
Suppressing and Unsuppressing the Components	13-24
Changing the Transparency Conditions	13-24
Changing the Display States	13-25
Checking Interferences in an Assembly	13-25
Checking the Hole Alignment	13-26
Creating Assemblies for Mechanism	13-27
Analyzing Collisions Using the Collision Detection Tool	13-28
Creating the Exploded State of an Assembly	13-30
Creating the Explode Line Sketch	13-32
Tutorial 1	13-34
Tutorial 2	13-44
Self-Evaluation Test	13-48
Review Questions	13-49
Exercise 1	13-50

Chapter 14: Working with Drawing Views-I

The Drawing Mode	14-2
Starting a Drawing Document	14-2
Starting a New Drawing Document Using the New SOLIDWORKS Document Dialog Box	14-2
Starting a New Drawing Document from the Part/Assembly Document	14-3
Types of Views	14-4
Model View	14-5
Projected View	14-5
Section View	14-5
Aligned Section View	14-5
Auxiliary View	14-5
Detail View	14-5
Break View	14-5
Broken-out Section View	14-5
Crop View	14-6

Alternate Position View	14-6
Generating Standard Drawing Views	14-6
Generating Model Views	14-6
Using the View Palette to Place the Drawing Views	14-8
Generating the Three Standard Views	14-9
Generating Standard Views Using the Relative View Tool	14-11
Generating Standard Views Using the Predefined View Tool	14-12
Generating Derived Views	14-14
Generating Projected Views	14-14
Generating Section Views	14-15
Generating Broken-out Section Views	14-23
Generating Auxiliary Views	14-25
Generating Detail Views	14-27
Generating Crop Views	14-29
Generating Broken Views	14-30
Generating Alternate Position Views	14-31
Generating Drawing Views of the Exploded State of an Assembly	14-33
Working with Interactive Drafting in SOLIDWORKS	14-34
Editing and Modifying Drawing Views	14-34
Changing the View Orientation	14-34
Changing the Scale of Drawing Views	14-34
Deleting Drawing Views	14-34
Rotating Drawing Views	14-35
Manipulating the Drawing Views	14-35
Modifying the Hatch Pattern in Section Views	14-35
Properties Rollout	14-35
Options Rollout	14-36
Tutorial 1	14-36
Tutorial 2	14-42
Self-Evaluation Test	14-47
Review Questions	14-47
Exercise 1	14-48

Chapter 15: Working with Drawing Views-II

Adding Annotations to Drawing Views	15-2
Generating Annotations Using the Model Items Tool	15-2
Adding Reference Annotations	15-4
Aligning the Dimensions	15-19
Editing Annotations	15-19
Adding the Bill of Materials (BOM) to a Drawing	15-20
Table Template Rollout	15-20
Table Position Rollout	15-20
BOM Type Rollout	15-20
Configurations Rollout	15-21
Part Configuration Grouping Rollout	15-22
Keep Missing Item Rollout	15-22
Item Numbers Rollout	15-22

Border Rollout	15-23
Setting Anchor Point for the BOM	15-23
Linking Bill of Materials	15-23
Adding Balloons to the Drawing Views	15-23
Adding Balloons Using the AutoBalloon Tool	15-24
Creating Magnetic Lines	15-26
Adding New Sheets to the Drawing Views	15-27
Editing the Sheet Format	15-28
Creating User-Defined Sheet Formats	15-28
Tutorial 1	15-29
Tutorial 2	15-34
Self-Evaluation Test	15-39
Review Questions	15-39
Exercise 1	15-40

Chapter 16: Surface Modeling

Surface Modeling	16-2
Creating an Extruded Surface	16-2
Creating a Revolved Surface	16-4
Creating a Swept Surface	16-4
Creating a Lofted Surface	16-7
Creating a Boundary Surface	16-9
Creating a Planar Surface	16-14
Creating a Fill Surface	16-14
Creating a Radiated Surface	16-19
Offsetting Surfaces	16-20
Trimming Surfaces	16-21
Untrimming Surfaces	16-24
Extending Surfaces	16-27
Knitting Surfaces	16-29
Filleting Surfaces	16-30
Creating a Mid-Surface	16-31
Deleting Holes from Surfaces	16-32
Replacing Faces	16-32
Deleting Faces	16-34
Moving and Copying Surfaces	16-36
Mirroring Surface Bodies	16-36
Adding Thickness to Surface Bodies	16-36
Creating a Thicken Surface Cut	16-37
Creating a Surface Cut	16-38
Tutorial 1	16-39
Tutorial 2	16-49
Self-Evaluation Test	16-59
Review Questions	16-60

Exercise 1	16-61
Exercise 2	16-62

Chapter 17: Working with Blocks

Introduction to Blocks	17-2
Blocks Toolbar	17-2
Saving a Sketch as a Block in the Design Library	17-7
Creating Mechanisms by Using Blocks	17-8
Creating the Rack and Pinion Mechanism	17-8
Creating the Cam and Follower Mechanism	17-9
Applying Motion to Blocks	17-11
Creating Parts from Blocks	17-12
Selected Blocks	17-12
Block to Part Constraint	17-12
Tutorial 1	17-13
Tutorial 2	17-21
Self-Evaluation Test	17-27
Review Questions	17-28
Exercise 1	17-29

Chapter 18: Sheet Metal Design

Sheet Metal Design	18-2
Designing the Sheet Metal Components by Creating the Base Flange	18-2
Creating the Base Flange	18-3
Understanding the FeatureManager Design Tree of a Sheet Metal Component	18-6
Creating the Edge Flange	18-7
Creating Tabs	18-15
Creating the Sketched Bend	18-16
Creating the Miter Flange	18-18
Creating Closed Corners	18-20
Creating Welded Corners	18-21
Breaking the Corners	18-22
Creating Corner Relief	18-23
Creating Hems	18-23
Creating the Jog Bend	18-25
Creating the Swept Flange	18-28
Creating Cuts on the Planar Faces of the Sheet Metal Components	18-29
Creating Lofted Bends	18-30
Creating a Flat Pattern View of the Sheet Metal Components	18-30
Creating Sheet Metal Components from a Flat Sheet	18-33
Creating a Sheet Metal Component from a Flat Part	18-34
Converting a Part or a Flat Part into Sheet Metal by Adding Bends	18-35
Adding Bends to the Flattened Sheet Metal Component	18-36
Unbending the Sheet Metal Part Using the No Bends Tool	18-37
Creating a Sheet Metal Component by Designing it as a Part	18-37

Types of Bends	18-38
Converting a Solid Body into a Sheet Metal Part	18-40
Designing a Sheet Metal Part from a Solid Shelled Model	18-41
Ripping the Edges	18-42
Creating Cuts in Sheet Metal Components Across the Bends	18-43
Creating Cuts in a Sheet Metal Component Created from a Solid Model	18-43
Creating Cuts in a Sheet Metal Component Created Using the Base Flange	18-45
Creating Cylindrical and Conical Sheet Metal Components	18-46
Inserting Forming Tools	18-47
Creating Forming Tools	18-49
Generating the Drawing View of the Flat Pattern of the Sheet Metal Components	18-49
Tutorial 1	18-50
Tutorial 2	18-57
Self-Evaluation Test	18-66
Review Questions	18-66
Exercise 1	18-67

**Chapters available for
free download**

Chapter 19: Equations, Configurations, and Library Features

Working with Equations	19-2
Adding Global Variables	19-4
Suppressing and Unsuppressing Features	19-6
Adding Equations	19-7
Editing Equations	19-8
Deleting Equations	19-9
Exporting/Importing Equations	19-9
Working with Configurations	19-9
Creating Configurations Manually	19-9
Editing the Features of a Part with Multiple Configurations	19-11
Creating Configurations by Using Design Tables	19-12
Changing the Suppression State by Using the Design Table	19-16
Editing the Design Table	19-19
Deleting the Design Table	19-20
Changing the Suppression State of a Component without Invoking the Design Table	19-20
Changing the Visibility of Components in Different Configurations of an Assembly	19-21
Library Features	19-22
Creating a Library Feature	19-22
Placing Library Features in a Part	19-23
Editing the Library Features	19-25
Dissolving the Library Features	19-26
Tutorial 1	19-26
Tutorial 2	19-30
Self-Evaluation Test	19-33

Review Questions	19-33
Exercise 1	19-34
Exercise 2	19-35
Exercise 3	19-35

Chapter 20: Motion Study

Introduction to Motion Study	20-2
Simulating the Motion of an Assembly	20-2
Timeline	20-2
Timebar	20-2
Keypoint	20-3
MotionManager Design Tree	20-3
Toolbar	20-3
Tutorial 1	20-15
Tutorial 2	20-17
Self-Evaluation Test	20-20
Review Questions	20-20
Exercise 1	20-21
Exercise 2	20-22

Chapter 21: Introduction to Mold Design

Introduction to Mold Design	21-2
Mold Designing Using SOLIDWORKS	21-4
Tutorial 1	21-15
Tutorial 2	21-27
Self-Evaluation Test	21-37
Review Questions	21-38
Exercise 1	21-38
Student Projects	SP-1
Index	I-1