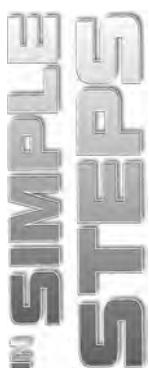


# Table of Contents

<b>Chapter 1 ■ Getting Started with Maya 2010</b>	<b>1</b>
Introducing CGI and Computer Graphics .....	2
Introducing the Workflow of CGI.....	2
The Pre-Production Stage.....	3
The Production Stage.....	3
The Post-Production Stage.....	4
Exploring the New Features of Maya 2010.....	5
Advanced Simulation Tools .....	5
High-Performance Compositing.....	5
Professional Camera Tracking .....	6
Increased Rendering Power.....	6
Installing Maya 2010 .....	6
Starting Maya 2010 .....	21
Navigating in Maya 2010.....	23
Main Menu Bar and Menu Sets.....	25
Tear off Menu.....	27
Status Line .....	28
Shelf .....	29
Toolbox.....	30
Channel Box and Layer Editor .....	31
Workspace .....	33
Attribute Editor.....	35
Asset Editor .....	36
Outliner .....	37
Hotbox and Marking Menus .....	38
Time Slider and Range Slider .....	39
Command Line and Help Line.....	40
Restoring Default User Interface Settings.....	41
Reverting to the Last Saved UI Configuration .....	41
Saving your Existing Custom User Preferences .....	42
Working with Projects and Scenes in Maya 2010 .....	42
Creating a Project .....	42
Creating a Scene.....	44
Opening an Existing Scene.....	45
Saving a Scene.....	46

# **Maya 2010 in Simple Steps**

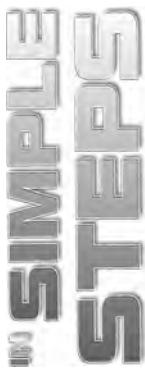


Exiting Maya 2010 .....	47
Summary .....	48

## **Chapter 2 ■ Working with Object in Maya 2010**

**49**

Understanding the 3D Space in Maya 2010.....	50
XYZ Coordinate Space.....	50
Perspective Space .....	51
Orthographic Projections .....	52
World Space and Local space .....	52
Exploring Different Types of Objects in Maya 2010 .....	52
Polygons.....	53
NURBS (Non-Uniform Rational B-Spline) .....	54
Subdivision Surfaces.....	54
Light.....	55
Camera .....	55
Creating an Object .....	55
Creating a Polygon Cylinder Using the Shelf.....	55
Creating a Polygon Cylinder Using the Menus and Submenus.....	58
Creating a Polygon Cylinder Using the Command Line (MEL):.....	59
Selecting and Deselecting Objects.....	60
Object Mode .....	61
Component Mode.....	61
Hierarchy and Combinations Mode.....	61
Pivot Point.....	62
Duplicating an Object .....	62
Grouping and Ungrouping Objects.....	64
Transforming an Object .....	67
Moving an Object .....	68
Rotating an Object .....	70
Scaling an Object.....	72
Transforming an object using the Channel Box .....	75
Using the Universal Manipulator Tool .....	76
Preselection Highlight Feature .....	80
Reflection.....	82
Working with Construction History .....	85
Working with Cameras.....	86
Navigating Between Camera Views.....	87
Manipulating Camera Views.....	88
Summary .....	90



<b>Chapter 3 ■ Polygonal Modeling in Maya 2010</b>	<b>91</b>
Planning for the Model.....	92
Simplifying the Polygon Mesh .....	92
Vertex .....	93
Edge .....	93
Face .....	95
UVs .....	96
Normal .....	97
Selecting Polygon Components by Painting .....	100
Creating a Polygon Mesh .....	101
Using a Polygon Primitives .....	101
Using the Create Polygon Tool .....	106
Modifying a Polygon Mesh.....	110
Adding Polygons to a Mesh .....	110
Subdividing Polygon Faces.....	116
Extruding Polygon Components .....	128
Beveling an Edge of a Polygon Mesh.....	131
Extracting Faces from a Polygon Mesh.....	134
Combining and Bridging Polygon Meshes .....	136
Smoothening a Polygon Mesh.....	139
Deleting Components of a Polygon Mesh.....	143
Creating a Symmetrical Polygon Mesh.....	145
Using the Mirror Geometry Feature.....	145
Using the Mirror Cut Feature.....	148
Using the Soft Selection Feature in Maya 2010.....	150
Summary .....	154
<b>Chapter 4 ■ NURBS Modeling in Maya 2010</b>	<b>155</b>
Outlining the Components of a NURBS Curve .....	156
Edit Points.....	156
Control Vertices .....	157
Curve Points .....	158
Hull .....	158
Degree .....	158
Normals.....	159
Drawing a NURBS Curve.....	159
Using CV Curve Tool.....	159
Using EP Curve Tool .....	163
Using Pencil Curve Tool.....	165
Editing a NURBS Curve .....	166

# **Maya 2010 in Simple Steps**



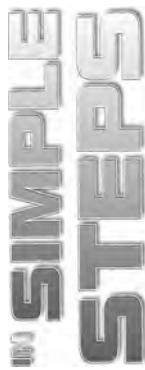
Modifying the Shape of a Curve .....	166
Inserting a Knot in a Curve.....	170
Joining and Splitting Curves .....	172
Closing and Opening a Curve .....	176
Extending a NURBS Curve .....	179
Smoothening a Curve .....	180
Outlining the Components of a NURBS Surface .....	182
Isoparms.....	183
Surface Patches .....	183
Surface Points.....	184
Drawing a NURBS Surface.....	184
Using NURBS Primitives to Create a NURBS Surface .....	184
Using NURBS Curves to Create a NURBS Surface.....	187
Editing a NURBS Surface .....	197
Inserting Isoparms in a NURBS Surface .....	197
Attaching and Detaching a NURBS Surface .....	201
Opening and Closing a Surface.....	204
Extending a NURBS Surface.....	206
Creating a Curve-On-Surface and Trimming the Surface .....	208
Performing a Boolean Operation .....	211
Summary .....	214

## **Chapter 5 ■ Animating Object in Maya 2010**

**215**

Describing Different Types of Animation .....	216
Keyframe Animation .....	217
Path Animation.....	217
Non-linear Animation .....	217
Driven Key Animation .....	217
Motion Capture Animation .....	218
Layered Animation .....	218
Dynamic Animation.....	218
Expressions.....	218
Exploring Animation Controls .....	219
Time Slider.....	219
Range Slider.....	220
Playback Controls.....	221
Working with Keyframe Animation.....	222
Setting a Keyframe .....	222
Editing a Keyframe .....	231
Using the Graph Editor.....	233

## Table of Contents



Adding a Keyframe on an Animation Curve .....	236
Copying and Pasting a Keyframe on an Animation Curve.....	237
Moving a Keyframe and Tangent on an Animation Curve.....	239
Working with Animation Layers .....	241
Creating an Animation Layer.....	241
Creating an Empty Animation Layer.....	241
Setting the Mode of an Animation Layer .....	243
Changing the Order of Animation Layers .....	244
Previewing an Animation .....	245
Creating a Motion Trail .....	245
Ghosting an Animated Object .....	247
Playblasting an Animation .....	248
Adding Sound to an Animation.....	250
Summary .....	252

### Chapter 6 ■ Shading, Texturing, and Lighting in Maya 2010 253

Working with Basic Shader Types .....	254
Describing Types of Shaders .....	254
Exploring Shader Attributes.....	260
Exploring the Hypershade Window .....	263
Exploring the Hypershade Window .....	264
Using the Hypershade Window .....	266
Working with Lights in Maya 2010 .....	268
Describing Different Types of Light.....	269
Applying Lighting Effects .....	279
Illuminating Fog .....	279
Creating a Lens Flare .....	282
Adding Glow to an Object .....	285
Using Mental ray for Maya Lighting.....	290
Caustic.....	290
Global Illumination .....	291
Final Gather .....	291
Describing the Mental ray Attributes.....	291
Working with Textures in Maya 2010 .....	292
Exploring Types of Textures.....	293
Mapping Coordinates.....	293
Summary .....	294



## Chapter 7 ■ Rendering in Maya 2010

295

Describing Different Types of Rendering Methods .....	296
Software Rendering Method .....	296
Hardware Rendering Method .....	297
Vector Rendering Method.....	297
Describing Different Types of Renderers in Maya 2010.....	297
Maya Software Renderer.....	297
Maya Hardware Renderer .....	298
Maya Vector Renderer.....	298
Mental ray for Maya Renderer.....	299
Choosing a Renderer.....	299
Exploring the Render View Window .....	301
Using the Render View Window .....	301
Using Maya Software Renderer .....	304
Performing Basic Operations for Rendering .....	311
Specifying the Name for Output Image.....	312
Specifying the Image Size .....	314
Specifying the Renderable Camera .....	315
Working with Cameras.....	315
Creating a Camera.....	315
Viewing a Scene through the Camera.....	318
Moving and Aiming a Camera.....	319
Making a Camera Renderable .....	319
Adding Depth of Field.....	320
Enabling Motion Blur .....	323
Using a Stereoscopic Camera.....	325
Working with Rendering Nodes.....	328
Texture Nodes.....	329
Placement Nodes .....	330
Material Nodes .....	330
Working with Render Layers .....	331
Using Mental ray for Maya Renderer.....	334
Summary .....	338