About this course

This instructor-led course teaches animators how to model, animate and render using Maya 1.0. With a focus on establishing a working knowledge of Maya's animation tools and techniques, this course builds a solid foundation for developing character animation and special effects sequences.

This course uses the first two sections of the Learning Maya tutorial book to provide the student with an overview of the Maya environment and how it can be applied to their work.

Course structure

This 5 -day course is taught in a lecture/lab format. The student will complete lab exercises that use the Learning Maya tutorials to establish hands-on experience. Lectures will help teach key concepts and answer questions generated by the exercises.

Course outcomes

After successfully completing the Maya Essentials course, the student will be able to:

♦ Navigate the Maya user interface

♦ Model a character using CV pulling, lattices and skeleton joints

♦ Animate using various Set Key techniques then edit the quality of the animation using the Graph Editor and the Dope Sheet.

♦ Build Shading Groups using various types of texture maps.

♦ Create Particle effects that are integrated into an animated scene.

♦ Render single frames and animated sequences

♦ Use Maya's MEL (Maya embedded language) programming language to build simple functions and custom user interface controls.

♦ Learn how to integrate these various elements to model, animate and render two complete scenes from start to finish.

Target audience

This course is designed for students who are new to Maya.

Prerequisites

Previous experience with computer graphics is recommended.

Curriculum

The five day course is broken down into morning and afternoon exercises. The instructor will begin each section with a lecture that introduces key concepts to the student. The exercises will then provide the student with hands-on experience.

Day 1 (9am to 12 pm) - Getting Started with Maya

The student will learn how to begin working in Maya. Each student will build a primitive object then set keys to animate a bouncing ball. The student will then add character to the ball using techniques such as squash and stretch.

Exercises:
♦   Learning Maya Lesson One: Bouncing a ball
♦   Learning Maya Lesson Two: Adding character

Concepts covered:
♦   Maya's user interface; menus, view panels, view tools
♦   How maya works; nodes, attributes, connections
♦   Building Primitives
♦   Setting Keys
♦   Refining an animation using the Graph editor
♦   Building object hierarchies
♦   Setting Keyable and Non Keyable channels
♦   Using Auto Key
♦   Adding Expressions
♦   Working with a Shear attribute

Day 1 (1 pm to 5 pm) - Visual Effects

Students will take the bouncing ball and begin adding color and texture. The student will also begin exploring alternative methods of using the user interface tools available in Maya. The students will then add particle effects to turn the bouncing ball into a wet sponge that is dripping water.

Exercise:
♦ Learning Maya Lesson Three: Rendering
♦ Learning Maya Lesson Four: Particles and Dynamics

Concepts covered include:
♦ Working with a menu-less UI
♦ How to use the hotbox and hotkeys
♦ Creating and assigning shading groups
♦ Working with the Multilister
♦ Creating and positioning procedural texture maps
♦ Adding light to the scene
♦ Test rendering
♦ Render Globals including motion blur
♦ Software rendering an animation
♦ Creating a particle emitter
♦ Applying gravity to the particles
♦ Setting up particle collisions
♦ Setting up a particle event
♦ Hardware rendering a particle animation

Day 2 (9am to 12 pm) - Modeling a character

For the rest of the course, the student will use Project One of the Learning Maya book. This project contains the animation of Salty the seal who is bouncing a ball. Salty and a set will be built, animated and textured from scratch throughout the rest of this course.

Exercise:
♦ Learning Maya Lesson Five: Building Salty

Concepts covered include:

♦ Layers

♦ Selection modes and selection masks

♦ CV edits

♦ Skeleton joints

♦ Binding the character's skin to the skeleton

♦ Developing a shading group for the seal skin

Day 2 (1pm to 5pm) - Adding Facial Details

The student will add eyes, a nose and whiskers to the character. These pieces will be built then grouped into the character's skeleton.

Exercise:

♦ Learning Maya Lesson Six: Adding Facial Details

Concepts covered include:

♦ Building an eyeball hierarchy

♦ Aim constraint

♦ Lattice and cluster deformers

♦ Adding an attribute to a node

♦ Set Driven Key

♦ Transparency maps.

Day 3 (9am to 12 pm) - Animating the character

The student will set up and animate the character. Using IK chains and constraints the character will bounce a ball on her nose.

Exercise:

♦ Learning Maya Lesson Seven: Animating Salty

Concepts covered include:

♦ Spline and Single IK chains

♦ Setting keys

♦ Point Constraints

Day 3 (1pm to 5 pm) - Animating the character

The student will add Dynamics to the scene to further animate the character. The goal will be to integrate the Keyframe animation with Dynamic simulations.

Exercise:
♦ Learning Maya Lesson Seven: Animating Salty

Concepts covered include:
♦ Rigid Body Dynamics for the bouncing ball
♦ Soft Body Dynamics for the seal's whiskers

Day 4 (9am to 12 pm) - Building the set

To create the appropriate setting for the character, the student will build a simple set then apply Stage lighting.

Exercise:
♦ Learning Maya Lesson Eight: Building the set

Concepts covered include:
♦ Modeling curves and surfaces
♦ Colored lights
♦ Positioning lights
♦ Animating the camera

Day 4 (1pm to 5pm) - Adding Texture

The student will learn how to create different texture mapping effects such as bump maps and displacement maps. The student will then build a layered shader and render the scene using Raytracing.

Exercise:
♦ Learning Maya Lesson Nine: The final take

Concepts covered include:
♦ Texture mapping effects
♦ Layering shaders
♦ Working with Shading Groups - node connections
♦ Raytrace rendering set up

♦ Surface Tessellation

♦ Batch rendering

♦ Rendering tips and techniques

Day 5 (9am to 12 pm)- Using MEL

To animate Salty's eyes blinking, the student will learn how to use Maya's scripting language, MEL, to create a blink function then to create a custom user interface window to control the variables. The power of using scripting as an animation tool will be explored.

Exercise:

♦ Learning Maya Lesson Ten: Blinking with MEL

Concepts covered include:

♦ What is a MEL command?

♦ Building and manipulating objects with MEL

♦ Creating a MEL function

♦ Creating a custom user interface window

Day 5 (1pm to 5pm) - Apply what you have learned

The student will get the chance to apply what they have learned by adding a new element into the Project One scene. The student will build, texture map and animate a bucket of fish and add it to the Salty scene. The goal is for the student to work without the aid of a courseware book and complete a simple exercise

On your own:

♦ Add a bucket of fish flopping around next to Salty

Concepts covered include:

♦ Review what has been learned so far.