

Blender 3D Animation & Modeling Bootcamp – 6-Month Course Outline

Month 1: Introduction to Blender & 3D Fundamentals

Week 1: Getting Started with Blender

- Understanding Blender's interface and navigation
- Essential tools and shortcuts
- Setting up a 3D workspace

Week 2: Basics of 3D Modeling

- Creating and modifying basic shapes
- Using extrude, scale, and rotate tools
- Understanding topology and edge flow

Week 3: Advanced Modeling Techniques

- Working with modifiers (subdivision, mirror, array)
- Creating hard surface and organic models
- Boolean operations and retopology basics

Week 4: Texturing & Materials

- Understanding UV unwrapping and mapping
 - Applying textures and shaders
 - Introduction to Blender's material nodes
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Month 2: Sculpting & Detailed Modeling

Week 5: Digital Sculpting in Blender

- Introduction to sculpting tools and brushes
- Creating high-detail character models
- Dynamic topology and multi-resolution sculpting

Week 6: Retopology & Optimization

- Converting high-poly models to game-ready assets
- Using manual and automatic retopology techniques
- Optimizing models for animation

Week 7: Creating 3D Props & Environments

- Modeling props like weapons, furniture, and vehicles
- Designing 3D landscapes and architecture
- Using displacement maps and sculpting details

Week 8: Lighting & Rendering Basics

- Introduction to Blender's lighting system
 - Setting up scene lighting for realism
 - Understanding rendering engines (Cycles & Eevee)
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Month 3: Rigging & Animation Basics

Week 9: Introduction to Rigging

- Understanding bones and armatures
- Creating a basic rig for characters
- Using weight painting for smooth deformations

Week 10: Advanced Rigging Techniques

- Adding inverse kinematics (IK) and constraints
- Facial rigging and shape keys
- Using drivers and custom controls

Week 11: Animation Fundamentals

- Understanding keyframes and timelines
- Creating smooth character movements
- Animating objects and props

Week 12: Walk Cycles & Character Animation

- Creating realistic walk and run cycles
 - Animating facial expressions and dialogue
 - Refining animations for fluid motion
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Month 4: Advanced Animation & VFX

Week 13: Physics & Simulations

- Animating cloth, hair, and soft body physics
- Creating realistic water and fire effects

- Using Blender's physics engine

Week 14: Camera & Cinematic Animation

- Setting up dynamic camera shots
- Understanding camera tracking and motion blur
- Creating cinematic sequences

Week 15: Particle Systems & Visual Effects

- Adding dust, smoke, and explosion effects
- Using Blender's particle system for animations
- Creating magical or sci-fi effects

Week 16: Advanced Rendering & Post-Processing

- Optimizing renders for speed and quality
 - Adding post-processing effects in Blender
 - Using compositing nodes for visual enhancements
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Month 5: Game Assets & Real-Time Rendering

Week 17: Creating Game-Ready Assets

- Low-poly vs. high-poly modeling
- Baking textures and normal maps
- Exporting models for game engines

Week 18: Blender for Game Animation

- Animating characters for games
- Creating game-ready motion cycles
- Exporting animations for Unreal Engine & Unity

Week 19: Real-Time Rendering in Eevee

- Optimizing materials for real-time rendering
- Creating stylized and photorealistic looks
- Using Eevee for fast animation previews

Week 20: Blender & VR/AR Basics

- Exploring VR modeling in Blender
- Exporting models for VR applications

- Introduction to AR asset creation
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Month 6: Final Project & Portfolio Development

Week 21: Planning the Final Project

- Choosing a personal or industry-style project
- Creating a production pipeline
- Setting up project goals and deadlines

Week 22-23: Project Execution

- Modeling, rigging, and animating a short scene
- Applying textures, lighting, and effects
- Refining and troubleshooting the final animation

Week 24: Showcase & Career Guidance

- Rendering and finalizing the project
- Creating a portfolio and demo reel
- Career paths and freelancing in 3D animation

This structured plan ensures students gain hands-on experience in **3D modeling, animation, and rendering**, making them industry-ready. Let me know if you need any tweaks!