

Introduction to 3D Modeling

Length of course: 3 Months (12 Weeks)	Schedule: 2 evenings per week, 2 hours per session	Level: Advanced
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Course Description:

This three-month course introduces students to the principles and practice of 3D modeling using Blender. Through a structured combination of technical exercises students develop skills in modeling, materials, texturing, lighting, cameras, and rendering. By the end of the course, students will create and present a 3D scene.

Why 3D Modeling?

3D modeling is an essential creative skill used across film, games, advertising, architecture, product design, visual effects, and digital media. Learning 3D develops both technical and creative thinking, allowing students to transform ideas into engaging visual experiences. Blender provides a powerful, industry-relevant platform through which students can explore the 3D production process.

Aims:

The course aims to develop students' foundational and practical knowledge of 3D modeling, while encouraging creativity, problem-solving, visual communication, and independent project development.

Students will learn to approach a 3D project from concept and planning through modeling, texturing, lighting, rendering, and presentation.

Objectives:

- By the end of the course, students should be able to use Blender confidently and navigate its core tools and workflows.
- Create, edit, and refine 3D models using appropriate modeling techniques.
- Apply materials, textures, lighting, and camera composition to create effective scenes.
- Plan, produce, render, and present a 3D project.
- Evaluate their own work and respond constructively to feedback.

Basic Course Outline:

Week 1: Introduction to 3D & Blender. Understand what 3D modeling is and how 3D is used in film, games, design and visualization. Introduction to Blender's interface, viewport navigation, Object Mode and Edit Mode. Practice selecting, moving, rotating and scaling objects. Learn how to save and organise Blender files.

Week 2: Basic Objects & Modeling. Create and manipulate basic mesh primitives. Introduction to vertices, edges and faces. Practice basic Edit Mode tools including extrude, inset and loop cut. Build a simple object using primitive shapes and develop an understanding of scale and proportion.

Week 3: Modeling from Reference. Learn how to import and work from reference images. Understand basic proportions and shape construction. Model a simple object from reference, such as a chair, table, container or other

everyday object. Practice refining forms and correcting basic modeling errors.

Week 4: Introduction to Modeling Workflows & Modifiers. Develop cleaner and more efficient modeling habits. Introduction to basic topology, quads and simple edge flow. Learn to use essential modifiers including Mirror, Subdivision Surface and Solidify. Apply these tools to improve and refine a simple model.

Week 5: Materials, Colour & Basic Texturing. Introduction to Blender's Material Editor. Understand base colour, roughness, metallic properties and simple surface appearance. Create and apply materials to existing models. Introduction to image textures and basic UV mapping.

Week 6: Lighting, Cameras & Still Rendering. Introduction to Point, Sun, Area and Spot lights. Explore how lighting affects mood, form and visibility. Learn basic camera placement, composition and framing. Introduction to Eevee and Cycles. Set up and render a simple still image.

Week 7: Modeling Practice. Develop and refine 3D models using the modeling tools and workflows introduced during the course.

Week 8: Modeling Practice & Refinement. Continue developing models with a focus on proportion, form, topology and clean modeling practices.

Week 9: Simple Scene Creation. Combine modeled objects, materials, lighting and cameras within a small 3D scene. Develop an understanding of scene layout, scale, depth and composition. Begin planning a short final exercise using skills developed during the course.

Week 10: Final Exercise Modelling & Scene Setup. Create or refine the simple assets required for the final exercise. Apply materials, arrange the scene, establish lighting and position the camera. Prepare the scene for rendering.

Week 11: Final Exercise Refinement & Rendering. Refine models, materials, lighting and composition within the final scene. Prepare render settings, create test renders and troubleshoot basic problems.

Week 12: Final Render, Presentation & Review. Complete and render a 3D scene. Present completed work for feedback. Review the core skills developed during the course and discuss possible next steps in 3D modeling.

Students will learn how to:

- Navigate Blender's interface and viewport.
- Work in Object Mode and Edit Mode.
- Select, move, rotate and scale 3D objects.
- Create and modify basic mesh objects using vertices, edges and faces.
- Use basic modeling tools including extrude, inset and loop cut.
- Model simple objects using primitive shapes and reference images.
- Apply basic modeling workflows and modifiers, including Mirror, Subdivision Surface and Solidify.
- Create and apply simple materials, colours and basic textures.
- Use basic UV mapping.
- Set up simple lighting using Point, Sun, Area and Spot lights.
- Position cameras and compose simple 3D scenes.
- Render still images using basic Eevee and Cycles settings.
- Build a simple 3D scene using modeled objects, materials, lighting and cameras.
- Prepare basic render settings and create test renders.
- Complete, render and present a 3D scene.