

I. 3D ANIMATION (CREDITS: 4)

Section-A

Unit I: Introduction to 3D space, Introduction to 3D view, Menus, Tabs, Panels, Viewport Shading, 3D Space Navigation, Transform Manipulators, Basic Transformations, **Introduction to Modelling:** Work Flow of Modelling, Point Selection, Border Select, Lasso Select, Circle Select, Menu Selection, Individual Origins, Working with Layers, Viewing layers, Multiple Layers, Moving Objects between layers, Objects in Blender

Unit II: Inorganic Modelling: Introduction to Curves and Surfaces, Curves, NURBS Curves, Editing NURBS Curve, Transform Tools, Smoothing Tool, Mirror Tool, Joining Curve Segments, Separating Curves, Deleting Elements, Curve Extrusion, Bevel Depth, Open 2D Curve, Closed 2D Curve, Advanced Extrusion, Surfaces, Nurbs Surface in Edit Mode, Deleting Elements, **Organic Modelling:** Introduction, Modelling Modes, Visualization, Tool Shelf, Properties Region, Structure, Vertices, Selection Mode, Selection Loops, Duplicating / Mesh Editing Tools, Extrude Edges and Vertices Only, Merge Duplicates

Unit III: Introduction to Materials & Shader: Functions of Materials, Material Settings, Material Panel, Materials Slots, Presets, Multiple Materials, Material Naming and Linking, Material Type, Assigning Materials, Creating a New Material, Reusing Existing Material, Deleting a Material, **Introduction to Shader & Texture Editing:** Diffuse Shaders, Types of Diffuse Shaders, Oren-NayarShader, Toon Shader, Fresnel Shader, Specular Shaders, Cook-Torrance Shader, PhongShader, BlinnShader, Toon Shader, Ward Isotropic Shader, Color Ramps Shading, Shading Panel, Transparency Panel, Fresnel, Transparent shadows, Mirror Reflection, Anisotropic, Subsurface Scattering (SSS), Enabling Subsurface Scattering, Developing your own SSS Material, Strands, Material Options Panel, Shadows Panel, Buffered Shadow Options

Unit IV: Shading Organic Models: Introduction, Halo Rendering, Halo Panel, Lens Flares, Halo Texturing, Volume Rendering, Shading, Multiple Scattering Options, Integration, Smoke and Fire, Wire Render, Textures and Mapping: Introduction, Apply Env, Terminology, Material Textures, Mapping, Types of Maps, Texture Types, Environment Maps, Introduction to Nodes, Watermark images

Section-B

Unit V: Introduction to Rigging: Introduction, Working with Constraints, Adding/Removing a Constraint, Relationship, Child of Constraint, **Introduction to Working with Armature:** Introduction, Working with Armature, If the Active Element is a Disconnected Root, If the Active Element is a Connected Root, Armature Deform Parent, With Automatic Weights, **3D Animation:** Introduction to KeyFrame, Keyframe Types, KeyFrame Animation, To test the

animation, press Alt-A Play, Interpolation, Extrapolation, Using Dope Sheet in Animation, **Textures and Mapping:** Introduction, Brief the Process o, Terminology, Introduction to Motion Tracking, 2D Stabilization, Mask Editor, Understanding Layers, Control Points, Compositing Node, Animating Masks, Parenting to Motion Tracks

*Unit VI: **Introduction to 3D Lighting:*** Introduction, Viewing Restrictions, Global Influences, Lighting Settings, Falloff Types, Sphere, Lamps Textures, Lamps Related Settings, Introduction to Understanding Shadows:Lamps: Ray-traced Shadows, Lamps: Buffered Shadows, Indirect Lighting, Ambient Occlusion (AO), Shadow Panel, Volumetric Lighting, Using Lamps in Blender: Introduction, Lamp:Point, Lamp: Sun, Lamp: Sky & Atmosphere, Lamps: Spot, Shadows, Spot Shape, Buffer Type, Spot Volumetric Effects, Lamp: Hemi, Lamp: Area, Area Raytraced Shadows

Unit VII: Using Light Rigs: Introduction, Lighting Rigs, Troubleshooting, Camera, Camera Lens, Lens Type, Camera Preset, Safe Areas, **Introduction to Dynamics:** Baking Physics Simulations, Compression, External, Multiple Caches, Common Field Settings, **Introduction to Rigid Body**, Soft Body and Constraints: Rigid Body, Soft Body, Rigid Body Constraint Types, Animation, Simulation Stability, Combining Rigid Bodies with Other Simulations, Scaling Rigid Bodies

*Unit VIII: **Cloth Simulations:***Introduction, Cloth Simulations, Collisions, Cloth Cache, Troubleshooting, Using Simulation to Shape/Sculpt a Mesh, Fluid Simulation: Introduction, How Materials Works, Fluid World, Fluid Boundary, Fluid Particles, Fluid Object, Fluid Obstacle, Fluid Inflow / Outflow, Fluid Particle, Fluid Control, Baking, Fluid Appendix