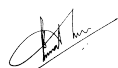


B. DESIGN IIIrd YEAR (ANIMATION) - SCHEME

Paper	Time (In Hours)	Size	Ext. Marks	Midterm/CCE	Total
THEORY (SUBJECT)					
1. Digital Modeling,	03	--	80	20	100
2. Lighting & Rendering	03	--	80	20	100
3. Virtual Reality	03	--	80	20	100
PRACTICAL					
1. Dynamic Anatomy	18	$\frac{1}{2}$ Imperial	80	20	100
2. Stop Motion Animation	18	$\frac{1}{2}$ Imperial	80	20	100
3. 3D Modeling & Texturing	18		80	20	100
4. 3D Rigging & Animation	12		80	20	100
TOTAL					700



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PAPER –I (THEORY) –DIGITAL MODELING

- What is Digital Modeling?
- Who can become a professional Digital Modeler?
- Fundamentals of a Digital Model – A Models Anatomy, Model Classification: Hard Surface & Organic, Model Styles
- Digital Modeling Methods – Build Out, Primitive Modeling, Box Modeling, Patch Modeling, Digital Sculpting, 3D Scanning, Modeling with Texture & Animation Tools, Importance of mixing methods
- Modeling a Realistic Head – Choosing a method: Edge Extend vs Box Modeling
- 3D Printing – What is 3D Printing, 3D Printing Applications, preparing a 3D model for 3D printing, 3D printing to manufactured toy process

Suggested Reading

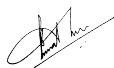
1. Digital Modeling by William Vaughan

PAPER – II (THEORY) – VIRTUAL REALITY

- What is Virtual Reality – Stereoscopic Displays, Motion Tracking Hardware, Eye Tracking, Input Devices, Computing Platforms
- How Virtual Reality is made?
- Hardware & Software Requirements to create Virtual Reality
- Difference between Virtual Reality & Augmented Reality
- Animation in a VR world - Anime VR
- Applications of Virtual Reality – 360° panoramas, etc.
- Virtual Reality Hardware – What is Oculus Rift, Samsung Gear VR, Google Card Board

Suggested Reading

1. Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile 1st Edition by Tony Parisi



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PAPER – III (THEORY) – LIGHTING & RENDERING

- Fundamentals of Lighting Design – Visual Goals of lighting design, Lighting Challenges, Your Workspace & Creative control
- Types of Lights
- Shadows & Occlusion – The Visual Function of Shadows, Shadow Algorithms, Occlusion
- Lighting in Animation – Three Point Lighting, Functions of Light & Issues in Lighting Character Animation
- Cameras & Exposure – F- Stops & Depth of Field, Shutter Speed & Motion Blur
- Composition & Staging – Camera Angles, Types of shots, improving your shots, Framing for Film & Video
- Shaders & Rendering – Shading Surfaces, Anti- Aliasing, Raytracing, Reyes Algorithm, Global Illumination, Caustics
- Production Pipelines & Lighting on larger productions

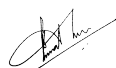
Suggested Reading

1. Digital Lighting & Rendering by Jeremy Birn
2. Aesthetic 3D Lighting: History, Theory, and Application by Lee Lanier

PRACTICAL 1 - DYNAMIC ANATOMY

COURSE OUTLINE

- Contour, shape, proportion, weight, mass and volume will be studied through lectures and drawing exercises. Topics covered include blind contour, straight and curved line, silhouette line, blocking-in and cross contour.
- Introduction to Figure Drawing - Drawing to Animation (any one drawing is only part of a whole)
- Introduction to the Skeleton - Volumetric rotations, axis lines, horizontal and vertical mechanics of the skeleton
- The Spine - Anatomy and Structure Curves, relationship to the skull, rib-cage
- The Pelvis and Shoulder Girdle - Anatomy and Structure, Torso Movement, Relationship to the leg and whole figure



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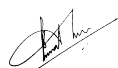


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- Upper leg and attachment to the pelvis, knee and foot - Joint Movement, Foot Placement (space)
- The skull - Basic structure, rotations, planes and divisions, Skull/neck relationship, Insertion into torso
- Animal Drawings, Quick Gestures Animals
- Review of the human skeleton and major joints, Basic Joint Movement Terminology, Introduction to the muscles of the upper torso, front and back
- The Arm and the Shoulder, Relationship to the Torso, Main Muscle Groups
- The Leg and Buttock, Relationship to the Torso, Main Muscle Groups
- Muscles of the Complete Torso, Mass, volume, movement, form and function
- Muscles of the Hand and Foot
- Introduction to the Walk Cycle, Leg movement, Muscles of the hip, knee, ankle, toe
- Muscles of the Head, Neck and Face, Neck insertion, head rotation
- Facial muscles and features, facial triangle, Review of Human Anatomy
- Capture the human and animal form effectively using observational drawing skills.
- Explain the relationship between time and the fundamental elements of life drawing.
- Discuss the characteristics and techniques of visual literacy.
- Create drawings that reflect figurative rhythmic, structural and proportional aspects of the human form
- Analyze observational drawings of animals and humans to enhance visual literacy.
- Field study animal drawing/comparative anatomy
- Head and neck musculature and structure/facial muscles
- Facial expression/mid-term critiques
- Leg and foot anatomy with structure
- The figure in the context of the environment/walk cycles/Perspective
- Field study animal drawing on zoo or farm (class trip)
- Drawing multiple figures in the environment/perspective
- Complete life drawings that reflect economy of style while incorporating significant elements of staging and lighting.
- Create life drawings that incorporate significant use of costume and drapery, environment, and elements of architectural style.
- Generate life drawings that reflect refined application of key observational concepts, principles, and theories related to dynamic anatomy. Extrapolate a wide range of characters that may be integral to the



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story using one or multiple models

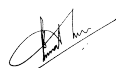
- Incorporate volumetric analysis and 3-D performance in life drawings that may be translated to computer generated characters
- Exhibit how life drawing augments the film by informing the mythology and humanity of the visual story through visual story arcs
- Incorporate historical knowledge of art direction, directorial styles and other media to generate life drawings in appropriate contexts
- Pay homage to an established film by reconstructing a scene from it in order to incorporate its essence into one's own independent film

PRACTICAL SUBMISSION

1. Complete Human Skeleton rotation - 1
2. Torso Movement, Relationship to the leg and whole figure – 1 each
3. Hands- Upper part, Lower part & fingers – 1 each
4. Knee and Foot - Joint Movement, Foot bones – 1 each
5. The Skull - Basic structure, rotations, planes and divisions – 1 each
6. Basic structure of Quadruped Animals & Blocking
7. Character Planes
8. Animal Quick Gestures
9. Life Drawings with staging & lighting – 5 (A3 Size paper)
10. Life Drawings with costume, drapery , environment - 5 (A3 Size Paper)
11. Life Drawing with expression & body language – 5 (A3 Size Paper)
12. Life Drawing incorporating mythology, historical dresses & props – 5 (A3 Size Paper)

Suggested Reading

1. An Atlas of Anatomy for Artists by Fritz Schider
2. Anatomy & Drawing by Victor Perad
3. Drawn to Life- Vol – 1 by Walt Stanchfield & Don Hahn
4. Drawn to Life- Vol – 2 by Walt Stanchfield & Don Hahn



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PRACTICAL 2 – STOPMOTION ANIMATION

COURSE OUTLINE

- Basic Geometrical shapes in clay
- Simple compositions in Clay with the use of human figures
- Clay Modeling of human figures using armature
- Introduction to Stop Motion Animation
- Software Intro
- Framing, Staging and Blocking
- Screening, Framing the Shot Blocking The Shot
- Effective Use of Dope Sheets
- Timing and Spacing
- Introduction to Puppets
- ❖ Screening
- ❖ Historical Context
- Introduction to Aluminum Puppets
- Timing
- Introduction to Lighting
- Advanced Puppet Making and Intro to rigging
- Design and Fabrication for Puppets
- Principles of camera lenses
- Production planning for stop motion

PRACTICAL SUBMISSION

Make a short film using stop motion animation (clay animation) – This is a group project & students must work in groups of 3-5.

1. Make a small script , Design Character, Design Background, Do Storyboard.
2. Give final output in clay animation (short film)

NOTES

- Compulsory to use aluminum armature (aluminum puppets) for the clay animation.



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- Use colored modeling clay.
- Use Aluminum Craft / Armature Wire

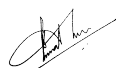
Suggested Reading

1. The Advanced Art of Stop-Motion Animation by Ken Priebe
2. Cracking Animation: The Aardman Book of 3-D Animation by Peter Lord (Author), Nick Park (Author), Brian Sibley (Author)

PRACTICAL 3 - 3D MODELING & TEXTURING

COURSE OUTLINE

- Introduction to Maya 3D Modeling Interface, use of mouse and keyboard, basic tools to be used in creating polygonal shapes and models. Descriptions of polygons, and the elements that make up a polygon in Maya, such as vertices, edges, faces, and UVIs. Overview of file keeping, saving files and workspace views. Moving, scaling, rotating and placement of objects in the 3D environment.
- Lecture and Demonstration of new tools, including extrusion of faces, extrusion along a curve and Boolean operations. In class project to create a simple snowman, using spheres, cylinders and cubes to create hat, facial features, buttons and arms. Removal of extra intersecting geometry and labeling of polygons to keep clean file with minimal geometry. Students to bring in a toy or a reference drawing of a hard surface, non-organic object for review to begin HARD SURFACE MODEL.
- Hand Model Project. Students will model and entire hand, including 4 fingers, thumb, palm and part of the wrist starting from a primitive cube and adding divisions, splitting polygons, extruding faces to create jointed digits, beveling edges, and refining the topology by adding, scaling and manipulating vertices of the geometry. Hand must resemble a human hand,. Wire frame model must remain unsmoothed to retain a smaller file size with minimal geometry.
- Character Model Project. Demonstration and lecture on character designing for 3D modeling. Review of character designs, any revisions required, and importing three views into Maya for reference. Students will learn new techniques of creating a symmetrical model by creating an instance of half the model and mirroring the operations performed to ensure equal geometry on each side of the 'Y' axis.



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Students are encouraged to model the character only, no drapery. Two or 4 legged traditional characters only, no robotic or non-organic characters. Designs must have head, body arms, legs, feet, and hands.

'Mitt' or cartoon hands permitted in this case. Learn Face expressions & morphing.

□ Interior Environment Project. Interior Environment Model with Lighting. Create an interior of a room, any era or style. Simple shapes representing walls, windows, furniture, flooring with various lighting and illumination. Assigning colour or texture to polygon surfaces. This is brief introduction to mapping and lighting techniques. Maya rendered images of 3 views of the model saved as jpg.

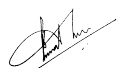
- Fur – Introduction to fur & its attributes, Fur on character – baldness & length
- Hair – Introduction to hair attributes, Hair Styling
- N-Cloth – Introduction to nCloth, nDynamics & Dynamics
- Lighting Plugins in Maya For Rendering – Arnold, Mental Ray, V-Ray
- Introduction to Caustic, Creating normal in crazy bump software

PRACTICAL SUBMISSION

1. Hard Surface Model - Students to bring in a toy or a reference drawing of a hard surface, non-organic object (non- living) like cars, architecture, etc.
2. Hand Model - Model an entire hand, including 4 fingers, thumb, palm and part of the wrist.
3. Character Modeling – Human & Animal (High Poly & Low Poly)
4. Creating hair on a character , Create a small creature with fur
5. Interior Environment - Create an interior of a commercial office, bedroom, & kitchen using mental ray & arnold
6. Make an object with the help of caustic on mental ray

Suggested Reading

1. Digital Modeling by William Vaughan
2. Maya Character Creation: Modeling and Animation Controls by Chris Maraffi
3. Aesthetic 3D Lighting: History, Theory, and Application by Lee Lanier



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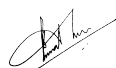


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PRACTICAL 4 – 3D RIGGING & ANIMATION

COURSE OUTLINE

- Joints, hierarchies, UV's and textures
- Rig applications problem solving
- Using constraints, scripts and utilities
- FK/IK joints and skinning
- Advanced Set driven key and rig systems
- Building advanced hierarchies and controls for posing
- Camera Rigging and render settings
- Advanced controls and custom attributes
- Deformation order and blend shapes
- Rivets, follicles, nulls and granular control systems
- Squash and stretch deformations and rigs
- Leg rigging, empty group nodes, custom pivot points
- Looking at different practical rig solutions
- Four-Wheeler Rigging
- Animation Essentials and Perception of Motion. Designing animation in Maya - 3D considerations. Timing, curves, handles, holds, slow in and out
- Walk Cycle: How cycles work and PIXAR walk design. Planning animations-thumbnails and key poses. Gravity, balance, believable weight and driving forces. Center of gravity and legs. Time allowing begin upper body, arms and head. Adding squash and stretch
- Quadruped Walk Cycle
- Driving forces: mood, personality, attitude
- Analyzing dialogue: listen for weak and strong parts
- Planning animation: thumbnail out poses you see in your head. Acting it out: become the character for a few hours
- Blocking Pass: pose your character for basic feel and timing fine tuning and moving holds Second Pass: critical in-betweens overlapping action and overshoots
- Third Pass: block in facial expressions and simple mouth shapes
- Fourth Pass: head squash and stretch animation, eye and tongue details



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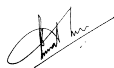
- Lip-sync Pass: simplify - show dominant vowels and consonants
- Final Pass: fix mistakes and push the poses
- Character Multiple Action Performance-
- Rig planning: considerations and workflows Hierarchies: grouping, parenting and pivot points Bones: basic character hierarchy
- Inverse and forward kinematics
- Skinning: volume distribution and custom deformations -The arm, hand and leg The Face: blendshapes
- Advanced overview of squash and stretch rigging
- Camera rigging and motion paths

PRACTICAL SUBMISSION

1. Design a flexible and functional spine rig. This assignment will be an Introduction to using simple Maya constraints, Set Driven Key and groups.
2. Design an FK-IK arm and hand rig. Continue to expand on methods for manipulating maya joints and their related geometry. Editing and designing character skin weights.
3. Design a flexible and easy to pose quadruped rig. This assignment will be an introduction to using simple Maya constraints, SDK, connection editor and other tools.
4. Build a complete head/face rig. The controls developed for the face will reflect the CG animation process. There will be main overall controls for posing of the eyes and facial expressions but also a collection of finer controls for squash and stretch etc.
5. Squash & Stretch, Biped Walk Cycle, Quadruped Walk Cycle Assignment
8. Character Multiple Action Performances (Basic) – 2 Characters
9. Animate a car

Suggested Reading

1. Rig it Right! Maya Animation Rigging Concepts by Tina O'Hailey
2. How to Cheat in Maya 2014: Tools and Techniques for Character Animation by Kenny Roy
3. The Art of 3D Computer Animation and Effects by Isaac V. Kerlow



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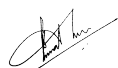
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B. DESIGN IVth Year (ANIMATION) – SCHEME

Paper	Time (In Hours)	Size	Ext. Marks	Midterm/CCE	Total
THEORY (SUBJECT)					
1. Visual Effects	03	--	80	20	100
2. Digital Compositing	03	--	80	20	100
3. Motion Capture	03	--	80	20	100
PRACTICAL					
1. Digital Sculpting	18	--	80	20	100
2. Visual Effects I	18	--	80	20	100
3. Visual Effects II	18	--	80	20	100
4. 3D Short Film	12	--	80	20	100
TOTAL					700



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B. DESIGN ANIMATION YEAR IV

PAPER – I (THEORY) – VISUAL EFFECTS

- Intro to the Motion Picture/VFX Pipeline
- What are movie making & VFX?
- Principles of motion picture & VFX
- Origins of Visual Effects & VFX concepts
- Rotoscoping, Motion Tracking & 2D Match moving – The golden rules of roto, Types of 2D motion tracking, comparing good & bad tracking targets & 2D motion tracking applications.
- How 3D CGI is created & its applications. 3D motion tracking & its applications.

Suggested Reading

1. Visual Effects and Compositing by John Gress

Paper – II (Theory) – Compositing

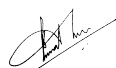
- Compositing – Compositing Applications, Layer Based Compositors, Nodal Based Compositors, Keyer Types & Concepts
- Structure of Digital Images – The Pixel, Grayscale Images, Colour Images & Four Channel Images
- Different of Visual & Special effects, Image Resolution, Image Aspect Ratio, Pixel Aspect Ratio, Display Aspect Ratio, Bit Depth, Floating Point, Photographic Images vs Graphics,
- Different between live action & CGI
- What is Blue screen & Green screen? & their use in VFX.
- Methods of warping & morphing

Suggested Reading

1. Compositing Visual Effects by Steven Wright

PAPER – III (THEORY) – MOTION CAPTURE

- History of motion capture – Early Attempts, rotoscoping, beginnings of digital mocap, Optical mocap systems, Magnetic mocap systems, Mechanical mocap systems.



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- Marker Sets – What are the system limitations? What kind of motion will be captured? Knowing the Anatomy.
- Pipeline – Setting up a skeleton for a 3D character, System Calibration, Subject calibration, Capture Sessions, Cleaning data, Editing data, Applying motions to 3D character, Rendering & post production.
- Cleaning Marker Data – Types of data, What to clean and what not to clean, labeling, data cleaning methods, when to stop, applying marker data to skeleton.
- Mocap data & Math – How data is created, Data types & formats, Coordinates & Coordinate system, Order of transformation, Euler angle, Gimbal lock, Quaternions.

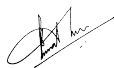
Suggested Reading

MoCap for Artists: Workflow and Techniques for Motion Capture by Midori Kitagawa

PRACTICAL 1 -DIGITAL SCULPTING (Z -BRUSH)

COURSE OUTLINE

- Sculpting Concepts – Comparing Traditional & Digital Sculpting, Anatomy for Sculptures, Proportions & Measurements, Form, Negative Space & Gesture.
- Digital Sculpting - Introduction to UI, Introduction to tools, Methods of Sculpting by the help of meshes
in z brush, Making of Shield (Brush Strokes, Masking, Displacement)
- Model a human skull
- Model human head with details
- Model human basic body
- A model imported from maya and fine tune
- Introduction to Z Sphere, Transpose, Modeling Animal using Zsphere
- Gesture poses
- Understanding of UV space and Texturing, Poly paint, Z App link
- Export of Normal, Displacement, Cavity maps
- Assignment - Create a fearsome warrior, a sportsman, a realistic old age face
- Realistic Character Modeling n Texturing - Building up Shapes - (Relative Scale, Form, Detailing), UV



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Layout & tiles in 3D space - (Planning, Techniques), Create new textures for painting their existing models, Utilize Projection Master to work with detail brushes and alpha, Brushes for highly detailed texture painting.

- Create realistic character texture painting
- Create texture for cartoons
- Create face expressions & morphing

PRACTICAL SUBMISSION

To be done in Z Brush..

1. Create a fearsome warrior
2. Create a sportsman,
3. Create a realistic old age face
4. Paint one figures developed in Assignment 1 or 2 or 3
5. Create 1 displacement maps and apply them in Maya

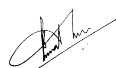
Suggested Reading

1. Sculpting from the Imagination: ZBrush (Sketching from the Imagination) by 3DTotal Publishing
2. ZBrush Characters and Creatures by Kurt Papstein, Mariano Steiner, Mathieu Aerni, 3DTotal Team
3. Introducing ZBrush 3rd Edition (Serious Skills) by Eric Keller

PRACTICAL 2 - VISUAL EFFECTS I

COURSE OUTLINE DYNAMICS

- Introduction to particle Menus & its attributes
- Introduction to nparticle
- Emitters & its Attributes
- Particle - Travel on Surface
- Particle Instancer
- Making Static Cloud With Particles
- Introduction to Fluid Effect



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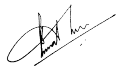


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- Assignment - Boat on an Ocean
- Introduction to Soft Bodies
- Soft Body - Rope Simulation
- Introduction to Rigid Body and Constraints
- Assignment - Rope bridge simulation
- Assignment - Particles into Glass
- Cereal Bowl Assignment

AFTER EFFECTS

- What is Broadcasting? Broadcasting Formats. General Discussion about vfx movies
- What is Compositing?
- shortcut for trimming, split layer, jump to next-previous frames, etc.
- Animation principals. How to create Parallax effects in 2D animation through transform properties.
- What is Interpolation? (Describe both Spatial and Temporal Interpolation). Create an example with Spatial Interpolation. Example of Raw across time. Define Orient along Path.
- Example of Temporal Interpolation. (Pendulum, etc). Define Child-Parent Relationship.
- Create Curtain, Clouds, etc using different Filters.
- What is Precompositing? Assignment - Make Solar system with Precompositing.
- Various use of Precompositing. Assignment - Make Lava effect with the use of Precompositing.
- Supernova Rays Effects
- Basic one line expressions. Gear System, Clock, Pendulum
- Telephone vibration with sound. Earthquake. Disco light with Sound.
- Control Expression through Expression Controller.
- Describe Different masking tools. Animate a layer using mask path. Vegas and Stroke effects on mask path with simple motion graphics.
- Roto Principals. Mask an image using roto principal.
- Make some Double Role with steady camera.
- Assignment - Roto on a moving character.
- Hair roto, motion blur roto.



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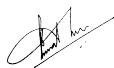


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- Assignment - Sin City Effects with use of leave color, level on red dressed lady.
- Assignment - Color Correction - Day to Night.
- Basic chroma removal filter with some simple examples. How to create hollow man effects.
- How to remove semi transparent chroma, grain footage, part-by-part chroma remove.
- 2.5D layer system with an example. Lighting parameters with an example.
- 2D text effects. fire fx, dancing text, etc. 3D .text effects and how to use animation presets.
- Simple tracking and stabilizing. (one point and two point)
- Assignment - Four point tracking. Track extension. Camera Shake
- Assignment - Paint tools and basic wire removal. Complicate wire/rig removal using Photoshop and after fx.
- Assignment - Create water ripple using wave world, caustic. Use of shatter
- Assignment - Fire effects. Particle for motion graphics.

PF TRACK

- UI and basic workflow of PFTrack
- Basic auto tracking and solving
- Use of mask in autotracking. How and when to use masking.
- Solve motion blur footage with autotrack using part by part solving method.
- Manual tracking and solving. Proper selection of user feature.
- Solving problem with combine of user feature and auto features.
- Calculated estimate focal length.
- Assignment – 2 point & 4 point tracking
- Solved zoom camera with steady and rotation camera.
- Solved zoom camera with free motion.
- Solved lens distorted footage.
- Solved lens distorted footage (complicated)
- Geometry based tracking.
- Assignment - Hard track and soft track
- Assignment - Object tracking (using geometry). Hard track



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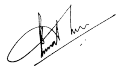


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- Object tracking using auto feature and user features. - hard track
- Assignment - Face track - hard track
- Paper fold track using soft track.
- Face expression track - softtrack
- Assignment - Track stereo footage.
- GD on various kind of camera moves and problems and their solution
- Troubleshooting • Nuke Workflow
- Merge Tools with basic Compositing
- Transformation & Animation
- Assignment - Rotoscope
- Shuffle & Shuffle Copy
- Assignment - Color Management
- Compose Render Passes
- Assignment - Keying
- Assignment - Tracking
- Stabilize
- Assignment - Cleanup
- Introduction to 3D
- Render Project
- Assignment – Integration of a 3D Object in a live action video

FUSION

- What is Compositing? What is Layer based Compositing? What is Node based Compositing? Layer based vs. Node based
- Basic Interface. Custom Preferences. Understanding use of Bins. Show some work of movie/project in Fusion. Discuss how important Fusion in Pipeline.
- Introduce tools. Create a basic compositing with reference to after effects/Photoshop and with their workflow.
- Assignment - Create Curtain, clouds, etc using different creator tools.
- How to apply Transform tools in your workflow.
- How to apply keys on a property with basic example



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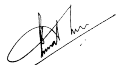


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- Displace a text on curtain.
- Understanding Timeline. Interpolation, looping using Spline.
- Define various tools for masking. Use of pre-mask and post-mask.
- Assignment - Simple character Roto.
- How to check your errors
- Motion Blur Roto.
- Roto Assignment
- Introduction to color correction tools with sin city fx example
- Day to Night (extract luma matte)
- Mountain Lava fx
- How to control channels. Control auxiliary channels in open .exr format
- Use of Deep pixel tools using channel Boolean and open .exr file
- Compose 3d render passes
- Tools to remove chroma. Basic chroma remove. Garbage masking for keying
- Chroma remove in grainy footage. Part by part chroma remove
- Create macro design according your pipeline. Benefit of Macros.
- One point, two point and four point tracking
- Stabilize shot. Extend the tracking information
- Assignment - Rotoscope using tracking Technique
- Introduction to 3D tools. Render 3d space. Interaction 3d tools with 2D tools.
- Assignment - Create shadow for a chroma shot using camera and lighting.
- Assignment - Camera projection using 3d tools in fusion.
- Import max/Maya file into fusion and use them for camera projection.
- Introduction to particle tools. 2D vs. 3D particle. Basic types of Emitters. Workflow of 3d and 2d particle system. Rain, snow effects using different forces tools.
- Stereoscope render images form Maya. Stereoscope using camera projection.
- Assignment - Water drops on glass. Fireworks. Blood on wall.
- Crowd multiplication using particle system. Ground ripple effect.



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- Assignment - How paint tool work. Cloning, Stamping.
- Design Clean plate using Photoshop and fusion. Remove Pimple from a moving face.
- Completed Clean plate with moving shot. Wire remove.
- Wire or rig remove from the face or body.
- How to use text tool.
- Assignment – wire removing of live action video.
- Integration of a 3D Object in a live action video

MOCHA

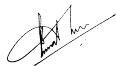
- User Interface and Mocha preferences
- Rotoscopy - Use of X-spline, B-spline. Editing control point. Keyframing, Timeline control and layer control, Viewing matte and color space, Working with interlace footage
- Tracking - Planner tracking, Adjusting tracking spline, Use of reference track spline, Track corner position for screen, Dealing with lens distortion footage
- Assignment - Advance roto - Deal large area, Stereo conversion, Inspecting your roto
- Assignment - Advance Tracking - Moving the camera with and without parallax, Multiple spline in a layer, Stabilizing
- Export footage and matte

REAL FLOW

- Introduction to Real Flow
- How to make a basic fluid
- How to make an ocean
- How to make snow

PRACTICAL SUBMISSION

- Assignment – Pouring milk in a glass 1. Submit all the assignments in the course outline



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Suggested Reading

1. Nuke 101: Professional Compositing and Visual Effects by Ron Ganbar
2. Creating Motion Graphics with After Effects: Essential and Advanced Techniques by Chris Meyer
3. Adobe After Effects CS6 Classroom in a Book by Adobe Creative Team
4. Visual Effects and Compositing by John Gress
5. Masters of FX: Behind the Scenes with Geniuses of Visual and Special Effects by Ian Failes

PRACTICAL 3 – VISUAL EFFECTS II

COURSE OUTLINE

- Chroma Shoot – Green , Tracking Points , Camera Tracking , 4 Point Tracking, Face Tracking, Motion Blur, Particles Effect , Advanced Lighting, Matt Painting, Roto, Masking, 3D Layer, Learning to Implement Vfx in Live Action Video

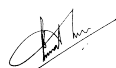
PRACTICAL SUBMISSION

Shoot a live action video with chroma for the submission. Edit the video with the help of Visual Effects. Duration – 30 seconds.

PRACTICAL 4- 3D SHORT FILM PROJECT

COURSE OUTLINE

- Production Meeting #1 - Organization, Roles and Protocols, Contract, Requirements for Story Treatment
- WORKSHOP: Plan, Breakdown, Schedule, The process, Budgeting time.
- Story Reel, Pitch Preparation
- Screenwriting & Script Preparation
- Production Meeting for Character Design Critique
- Story Board to Story Reel, Character and Story
- Typology of Animation Sound Tracks-Temp Music Selection and Editing



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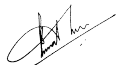


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- Leica Reel review, Screening of final Leica Reels
- Digital Mapping methods and types of maps. UV Texture editor
- Surface attributes, materials, shaders and shader networks
- Types of lights, Typical lighting approaches
- Shadows, Lighting for mood, time of day, realism
- Rendering editor
- Mental Ray renderer
- Global Illumination, Caustics HDRI
- Sun and sky settings, motion blur, atmosphere, render layers, Z depth
- AfterFX review for compositing, colour correction
- Rendering
- Mattes, transparency, file Management

PRACTICAL SUBMISSION

1. This is a group project. Students have to work in groups of 3-5 students.
2. Make a 3d animated short film using MAYA. VFX has to be used. Minimum – 30 seconds
3. Live Action with an animated character can also be included in the short film. This is optional.



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